



Chapter 6

CONSTRUCTION

6 Construction

Preface

This chapter has had a minor update, principally in respect of expected construction dates and programme for the Development.

6.1 Introduction

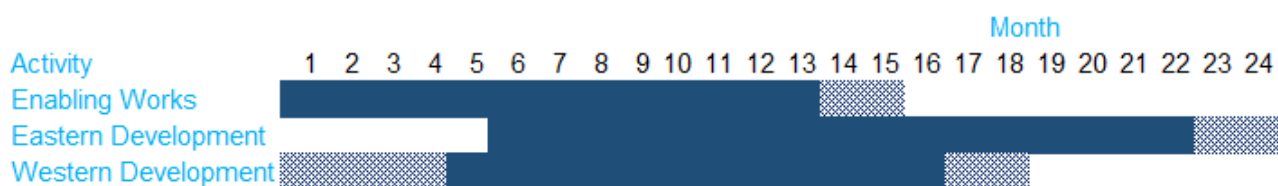
- 6.1.1 This chapter describes the construction processes and the key construction activities that will be undertaken prior to completion and occupation of the Development, along with an indicative programme of the construction works and phasing for the Development.
- 6.1.2 Quod has prepared this chapter in conjunction with the Applicant and their design and consultant team. Information on enabling and construction works is general at this time and may be subject to modification following appointment of a principal contractor(s). For this reason, the EIA is based on reasonable assumptions as set out in this chapter and the collective experience and professional judgement of the EIA, design and consultant team with similar projects.
- 6.1.3 It should be noted that this is a descriptive chapter. Assessments of construction impacts of the Development are provided in each technical chapter of this ES (i.e. Chapters 7 to 15). In addition, each technical chapter assesses the cumulative impacts of construction of the Development in conjunction with other schemes in the vicinity.
- 6.1.4 This chapter is supported by two Framework Construction Environmental Management Plans (CEMPs) for the Eastern Development and Western Development (inclusive of Enabling Works), provided in Appendix 6.1 and Appendix 6.2 respectively.

6.2 Programme of Works

- 6.2.1 Enabling Works are expected to commence in early 2025. Following completion, overall construction of both Sites is anticipated to commence and be complete by the end of 2026. The indicative delivery programme for both the Eastern and Western Developments is estimated to be approximately 24 months, including the Enabling Works. Following completion of Enabling Works, it is proposed that construction of the Western Development will begin, with the Eastern Development to follow. However, there will likely be some overlap in the construction phases, albeit at different levels of intensity over the construction period. It should be noted that soft / hard landscaping, drainage works and internal access roads surrounding the units will be completed as part of each phase.
- 6.2.2 The indicative duration of works is summarised in Figure 6.1¹. This indicative phasing has been assumed for the EIA; however, should the phasing change it is not considered that the conclusions of the ES would be materially altered.

¹ The solid blocks indicative expected core programme; hatched blocks indicate provisional contingency period.

Figure 6.1: Indicative Construction Programme



6.2.3 Contractors have not yet been appointed for any aspect of the Development and as a consequence of this, there is a degree of uncertainty about how the Development would be constructed and the likely length of the construction programme.

6.2.4 Whilst details regarding future construction are not finalised at this stage, it is possible to provide general information about the construction activities.

Enabling Works

6.2.5 As noted in Chapter 1: Introduction, Enabling Works are required to facilitate early development of the Western Site. These are described in Chapter 5: Description of Development and will be underway before construction of the Eastern and Western Developments commence. The Enabling Works will take approximately 13 – 15 months to complete, starting in early 2025.

6.2.6 To ensure compliance with relevant legislation and as good practice, a complete suite of ground investigation surveys, ecology surveys, an archaeological desk-based assessment and geophysical survey have been undertaken, allowing for appropriate mitigation measures to be put in place where necessary.

Western Development

6.2.7 The Western Development will commence following completion of the majority of the Enabling Works, expected in mid/late-2025. A period of approximately 11 - 18 months is expected for construction of the proposed units with completion in mid/late-2026, subject to the grant of detailed planning consents.

Eastern Development

6.2.8 The Eastern Site would commence shortly after the Western Development, expected in late-2025. Construction works are expected to last approximately 18 - 20 months with completion in late-2026, subject to the grant of detailed planning consents.

6.3 Description of Works

6.3.1 The following sections provide an overview of the anticipated enabling works and construction strategy for the Development as well as site preparation works.

Enabling Works, Remediation and Infrastructure and Services

6.3.2 The following works are likely to form the basis of the Enabling Works, remediation and infrastructure and services stage, where relevant, for all phases of the Development – across the Eastern Development and Western Development – as required:

1. Ground/drainage/utilities works and/or further archaeological investigations would be undertaken, as required;
2. Hoarding or safety fencing would be erected around the boundary of construction areas, with fencing to protect sensitive features (e.g. vegetation to be retained, heritage assets, watercourse buffers);
3. Works to utilities and any further infrastructure and services required by the Development would be carried out. This may include but is not limited to, capping-off or removal of redundant utilities and boreholes, new supplies, diversions and connections for electrical, telecommunications, gas, potable water, foul water and surface water drainage infrastructure (including SuDS), as agreed with the statutory authorities; and
4. To achieve the required Site levels there could be some general civil engineering groundwork activities including excavation, grading and preparation of surfaces as well as the placement/compaction of fill. During engineering groundwork activities for the Site, the removal of topsoil and vegetation will be undertaken. Additionally, land remediation may be undertaken (in the event that contamination is identified during intrusive ground investigations).

Construction

6.3.3 Construction of the Western Development would commence on building structures following completion of the Enabling Works. Construction activities for the Eastern Development would commence in-line with the phasing programme summarised in Figure 6.1.

6.3.4 The method of construction is dependent on the nature of the buildings and detailed design and has therefore not been fixed at this outline planning stage. However, likely standard construction activities are applicable to both Sites, as are outlined below:

1. **Structures** – A steel frame construction would be used. The building will be erected from pad foundations using scaffolding, mobile cranes or mobile platforms as appropriate.
2. **Cladding and Fit Out** – The wall and roof cladding of the units will be progressively installed/constructed and may overlap steel frame construction where site logistics and structural integrity allows. Upon completion of each unit's façade, the interior floor slab will be laid and fit out and installation of mechanical, electrical and plumbing systems will commence.
3. **External Works and Landscaping** – Areas of landscaping and open space would be completed during the end of the respective Development programmes, prepared using large and small excavators. Necessary drainage works and internal roads would be built as part of each phase to relevant design standards.

6.4 Construction Waste and Materials

- 6.4.1 Reuse of material reduces deliveries to the Site and the amount of waste for disposal. Where feasible, excavated materials would be re-used to create suitable platforms for development. Exact quantities would be defined during Reserved Matters on completion of detailed design. Re-use of such materials would be dependent on it meeting relevant geotechnical specification requirements and being inert.

Waste and Materials Management

- 6.4.2 Waste produced during all construction activities on-site will be subject to the 'Duty of Care' under the Environmental Protection Act 1990¹. It will be the joint responsibility of the Principal Contractor and the Applicant to ensure that waste produced on-site is disposed of in accordance with legislation.

- 6.4.3 All relevant contractors will be required (this will be controlled via a planning condition on the planning permission) to operate in accordance with the Framework CEMPs (Appendices 6.1 and 6.2) and will be required to investigate opportunities to minimise and reduce waste generation in line with the Government aim of *"Work towards eliminating all avoidable waste by 2050"* by:

- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme;
- Implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled, which increases the risk of their damage and disposal as waste;
- Use of standard size components in design detailing to eliminate risk at source where possible to do so;
- Attention to material quantity requirements to avoid over-ordering and generation of waste materials;
- Re-use of materials wherever feasible, e.g. re-use of excavated soil for landscaping;
- Segregation of waste at source where practical;
- Re-use and recycling of materials off-site, where feasible, and where re-use on-site is not practical (e.g. through use of an off-site waste segregation facility and re-sale for direct re-use or re-processing);
- Skips will be colour coded and signposted to reduce risk of cross contamination and covered to prevent dust and debris blowing around the Site, these will be cleared on a regular basis; and
- Burning of wastes or unwanted materials will not be permitted on-site.

- 6.4.4 The relevant contractors will be required to carry out works in a way that, as far as is reasonably practicable, minimises the amount of waste to be disposed of by landfill. Any waste arising from the Site will be transported and disposed of in accordance with relevant legislation, including the following:

- The Environmental Permitting (England and Wales) Regulations 2016² (as amended)³;
- The Waste (England and Wales) (Amendment) Regulations 2011⁴ (as amended)⁵;
- The Waste Management (England and Wales) (Amendment) Regulations 2006⁶; and
- Clean Neighbourhoods and Environment Act 2005⁷.

6.4.5 The project will seek to maximise the reuse of suitable soils on-site, where possible, in order to minimise waste disposal. Intrusive site investigation work will be undertaken to identify any significant areas of contamination. It is likely that the intrusive site investigation work will comprise soil chemical testing to further characterise soil material for disposal, including Waste Acceptance Criteria (WAC) analysis.

6.4.6 Hazardous waste will be kept separately from other wastes and in appropriate containers and Duty of Care will be ensured for the transfer and removal of all site wastes. Further details are provided in the Framework CEMPs for the Sites (Appendix 6.1 and 6.2).

6.5 Construction Methods

Plant and Equipment

6.5.1 An indicative list of large plant and equipment that are likely to be used at various stages of construction are shown in Table 6.5.

Table 6.5: Plant and Equipment

Plant and Equipment	Stage of Works				
	Enabling Works, Drainage, Infrastructure and Servicing	Superstructure	Facade	Fit-Out	Landscape
360° Excavator	✓				
Tower / Mobile Crane	✓	✓	✓		
Dumper	✓	✓			✓
Breaker	✓				
Compressor & Air Tools	✓	✓	✓	✓	
Drills / Cutters	✓	✓	✓	✓	✓
Compacter / Roller	✓	✓			
Concrete Pumps	✓	✓	✓		
Generators	✓	✓	✓		
Concrete Vibration Equipment	✓	✓			
Scaffolding		✓	✓	✓	
Fork Lift Truck	✓	✓	✓	✓	✓
Goods/ Passenger Hoist	✓	✓	✓	✓	✓
Mast-climber Platforms	✓	✓	✓	✓	
Mechanical Road Sweeper	✓	✓	✓	✓	✓
Floodlights	✓	✓	✓	✓	✓
Hydraulic benders and cutters	✓	✓	✓	✓	

Plant and Equipment	Stage of Works				
	Enabling Works, Drainage, Infrastructure and Servicing	Superstructure	Facade	Fit-Out	Landscape
Lorries and Vans	✓	✓	✓	✓	✓
Muck away Lorries		✓			
Ready mix concrete trucks	✓	✓			

Hours of Work

6.5.2 The prescribed hours of construction work would be agreed with CDC. It is anticipated that the core working hours for the Development will be as follows:

- 07:30 – 18:00 hours weekdays;
- 08:00 – 13:00 hours Saturday; and,
- No working on Sundays or Bank Holidays.

6.5.3 Approval from CDC will be required for any works that need to be undertaken outside of permitted hours.

6.5.4 Typically, works that may need to be undertaken out of hours would be for the delivery and removal of abnormal loads, for which the Principal Contractor will be expected to make the necessary road closure applications to CDC and/or OCC, if required.

6.6 Construction Traffic

Construction Vehicle Movements

6.6.1 During construction, vehicles will access and egress the Site via roundabouts connecting to the B4100 (Chapter 5: Figure 5.4). Access to the Western Development during the construction works will be gained via a roundabout constructed during the Enabling Works on the B4100. Access to the Eastern Development will be gained via a temporary access/egress point on the B4100, until a permanent roundabout will be constructed as part of the Development.

6.6.2 The estimated numbers of enabling works and construction-related vehicle journeys, including staff trips and Heavy Goods Vehicle (HGV) movements, have been projected for the busiest periods during the Enabling Works and construction programme for each of the Sites to allow for an assessment of the 'worst case' scenario; thereby making the assessment as robust as possible. This has been calculated based on volumes of construction waste material, together with imported concrete, piling and cladding.

6.6.3 Table 6.6 summarises construction traffic information for the Enabling Works, the Eastern Development and the Western Development. It is assumed that there will be 40 HGV deliveries and 190 car/ Light Goods Vehicle (LGV) trips to the respective Sites per day.

Further details on construction traffic on the surrounding road network is provided within Chapter 8: Transport and Access.

Table 6.6: Summary of construction traffic movements

	Car/ LGV trips	HGV trips
Enabling Works traffic	27,375	7,300
Western Development traffic	109,500	29,200
Eastern Development traffic	82,125	21,900
Total Development construction traffic	219,000	58,400

Construction Vehicle Management

- 6.6.4 Extensive swept path analysis studies will be conducted to establish the most efficient construction site layout for the Development. The construction site layout will be phased to reflect the sequence of works from site preparation to groundworks and piling onto superstructure.
- 6.6.5 On-site parking for construction workers will be restricted to a reasonable minimum. This will only be made available to those construction personnel who need to carry heavy equipment or materials to the Site. The labour force will be encouraged to use public transport. Local traffic management measures for Site access will be agreed with CDC prior to construction commencing in conjunction with surrounding development sites. These measures would be set out in a Construction Traffic Management Plan, with key principles set out in the Framework CEMPs.
- 6.6.6 The Principal Contractor and sub-contractors will ensure a commitment to careful management of Site deliveries and collections by scheduling them in a manner that consciously avoids, where possible, the most congested times of the day.
- 6.6.7 There will be no road closures during the construction of the Development. Traffic controls will be implemented.

6.7 Potential Environmental Effects

- 6.7.1 All construction sites have the potential to cause temporary nuisance effects and other disruption to sensitive receptors situated on the Site or in the surrounding area. Detailed assessments of effects resulting from demolition and construction works are provided in Chapters 7 to 15. Table 6.7 provides a summary of potential effects which could arise in the absence of mitigation.

Table 6.7: Summary of Potential Construction Effects

Topic	Potential Effects
Socio-Economics	Temporary increase in construction related employment and jobs. Increased local expenditure as a result of the Development construction workforce in the surrounding area.
Transport and Access	Temporary traffic disruptions caused by site vehicles and an increase in HGV movements. Transfer of mud and materials from vehicles onto the public highway. Disruption to pedestrian / cycle access and routes within the locality of the Site.
Air Quality	Generation of temporary dust and emissions including particulate matter from construction works and construction traffic.
Noise and Vibration	Temporary increased road noise and vibration generated from construction vehicles, plant and machinery required for construction of the Development.
Cultural Heritage	Temporary adverse effects within the setting of built heritage receptors including increased noise, light and dust levels as well as the temporary visual effect of the construction of the Development.
Biodiversity	Habitat loss, disturbance on faunal populations on and in the vicinity of the Site and disruption to habitats / faunal populations within receiving range of dust etc. during the construction phase.
Landscape and Visual Impacts	Temporary visual intrusion of construction, with respect to tower cranes/ hoarding/ machinery/ plant/ site offices etc., to nearby residents, occupiers of commercial and industrial properties in the surrounding area; pedestrians and road users
Climate Change and Greenhouse Gases	Increase in Greenhouse Gas (GHG) emissions associated with construction transport, site activities and embedded carbon within construction materials.
Hydrology, Flood Risk and Drainage	Accidental spills and discharges from the storage of fuels, construction materials, plant and machinery to surface waters.

6.7.2 Several potential effects are not assessed within the ES such as waste, hazardous waste and contaminated land, materials usage, indirect effects of energy use, construction lighting and fuel storage. Discussion on the scoping out of these topic assessments is provided in Chapter 3: EIA Methodology. Section 6.4 provides information on waste and management. Further details on waste and the other effects listed above are provided within the Framework CEMPs appended to the planning applications. In addition, further information on topics not assessed within the ES is provided in the documents that support the planning applications.

Environmental Management and Mitigation Measures

6.7.3 The Applicant has committed to implementing a CEMP during enabling and construction activities. Framework CEMPs are provided in Appendices 6.1 and 6.2 for the Eastern and Western Developments (inc. Enabling Works) respectively. The Framework CEMPs set out the strategy, standards, control measures and monitoring procedures that will be

implemented to manage and mitigate any adverse environmental effects of the construction process, including mitigation measures defined by the ES.

- 6.7.4 The CEMPs will be developed pursuant to the Frameworks CEMPS and will refer to industry standards, good practice and guidance, such as the Guidance for Pollution Prevention (GPPs) notes (i.e. GPP13: Vehicle Washing and Cleaning⁸; and GPP22: Dealing with Spills⁹) and will remain live documents to ensure that they are specific to the works and processes that are to be employed during construction site activities. The CEMPs include details on roles and responsibilities, control measures and activities to be undertaken to minimise environmental effects, as well as monitoring and record-keeping requirements. They also provides a framework for engaging with local residents and communities and their representatives throughout the construction period.
- 6.7.5 The CEMPs will include roles and responsibilities, details on control measures and activities to be undertaken to minimise environmental effects, and monitoring and record-keeping requirements.
- 6.7.6 The CEMPs will detail the practical execution of the construction works that demonstrates compliance with the measures and controls of the CEMPs and other requirements. They will also provide details of the general site layout and operations, working hours, site lighting, security, emergency planning and response, fire prevention and control, utility works and worker access and welfare. The mitigation measures within the technical chapters (i.e. Chapters 7 to 15) are included within the Framework CEMPs and will be reviewed at the detailed construction planning stage as part of the development of the detailed CEMPs to ensure that they are sufficient to meet the commitments made throughout the assessments.
- 6.7.7 The CEMPs will each comprise, but not be limited to, the following elements to minimise the environmental effects of the Development's construction on the surrounding area:
- Construction Traffic Management Plan (CTMP);
 - Considerate Constructors Scheme;
 - Neighbour and public relations;
 - Management of trade contractors;
 - Archaeology;
 - Noise and vibration;
 - Air quality;
 - Waste management;
 - Protection of water resources;
 - Biodiversity and Ecology; and,
 - Energy and water usage.

Considerate Constructors' Scheme

- 6.7.8 The principal contractor will be registered with the 'Considerate Constructors Scheme' (CCS)¹⁰. The CCS ensures that contractors carry out their operations in a safe and considerate manner with due regard to passing pedestrians, road users and surrounding properties.

Neighbour and Public Relations

- 6.7.9 The Principal Contractor will be the first line of response to resolve issues of concern or complaints. Reasonable steps will be taken to engage with local residents during the construction works. Occupiers of neighbouring properties will be informed in advance of works taking place. Site boards outlining information on the scheme and forthcoming works will be erected at the entrance to the Site. Site contact numbers will be displayed as appropriate, along with the complaint procedure.

Dust, Noise and Vibration

- 6.7.10 Dust emissions escaping the work area may cause nuisance through, for example, surface soiling, loss of visibility due to deposition, and effects on nearby flora and fauna. Since it is difficult to suppress dust once it is airborne, it is optimal, where possible to prevent dust from being generated at source and good practice site mitigation measures, such as covering of stockpiles, on-site traffic management, wheel washing and good plant and vehicle maintenance, will be employed to minimise these effects as far as practicable, as set out in the Framework CEMPs.
- 6.7.11 Potential sources of noise and vibration include (but are not restricted to) plant and usage of heavy machinery, piling activities, crushing activities and vehicles movements. The Principal Contractor will implement the necessary management and operational controls on-site in order to minimise adverse noise and vibration impacts on nearby sensitive receptors from construction site activities.
- 6.7.12 Good practice site measures will seek to minimise potentially adverse noise and vibration effects that result from these activities. Should a complaint be received regarding noise and/or vibration, the Principal Contractor will consider installing monitoring equipment to measure the level of noise and/or vibration being caused and, if it is deemed necessary, additional mitigation measures will be implemented to further reduce these impacts.
- 6.7.13 Further details on these potential effects and mitigation measures can be found in Chapter 9: Air Quality and 10: Noise and Vibration respectively and the Framework CEMPs.

Water Resources and Land Pollution

- 6.7.14 Surface water, groundwater and land will be protected from polluting materials through the construction process through adequate bunding, provision of spill kits, implementation of correct storage measures and adherence to washing down and refuelling procedures. Contractors will adhere to GPP13: Vehicle Washing and Cleaning and GPP22: Dealing with Spills to mitigate potential adverse effects during the construction phase. In the incidences of a spill, the Site Manager will be notified and work will be halted.
- 6.7.15 Further details on these potential effects and mitigation measures can be found in Chapter 15: Water, Flood Risk and Drainage and the Framework CEMPs.

Cultural Heritage

- 6.7.16 The archaeological Desk-Based Assessment (DBA) indicated it is unlikely that archaeological assets will be encountered. Notwithstanding, if a potential buried heritage asset is encountered, the Site Manager will be notified and works will be halted.

6.7.17 Further details on these potential effects and mitigation measures can be found in Chapter 11: Cultural Heritage.

Biodiversity mitigation and safeguards

6.7.18 Contractors will ensure good practice construction measures are implemented to protect sensitive flora and fauna on or in the vicinity of the Site. This will include but not be limited to the use of protective fencing around root protection areas, hoarding and adherence to lighting, dust and noise and vibration mitigation measures. In the unlikely event that protected species are encountered during construction works, the Construction Manager shall be informed. A strategy will be agreed with CDC and relevant statutory consultees (if required) to define the most appropriate method for resolving this issue.

6.7.19 Further details on these potential effects and mitigation measures can be found in Chapter 12: Biodiversity and the Framework CEMPs.

References

- ¹ Her Majesty's Stationary Office (1990). *The Environmental Protection Act 1990*.
- ² Her Majesty's Stationary Office (2016). *The Environmental Permitting (England and Wales) Regulations 2016*.
- ³ Her Majesty's Stationary Office (2018). *The Environmental Permitting (England and Wales) (Amendment) Regulations 2018*.
- ⁴ Her Majesty's Stationary Office (2011). *The Waste (England and Wales) Regulations 2011*.
- ⁵ Her Majesty's Stationary Office (2014). *The Waste (England and Wales) (Amendment) Regulations 2014*.
- ⁶ Her Majesty's Stationary Office (2006). *The Waste Management (England and Wales) Regulations 2006*.
- ⁷ Her Majesty's Stationary Office (2005). *Clean Neighbourhoods and Environment Act 2005*.
- ⁸ Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environment Protection Agency (2017). *Guidance for Pollution Prevention: Vehicle Washing and Cleaning PPG13*.
- ⁹ Natural Resources Wales, Northern Ireland Environment Agency and Scottish Environment Protection Agency (2018). *Guidance for Pollution Prevention: Dealing with Spills*.
- ¹⁰ Considerate Constructors Scheme. Available at: <https://www.ccscheme.org.uk/>