5 CONSTRUCTION METHODOLOGY AND PHASING

Introduction

5.1 This chapter describes the anticipated construction methodology and phasing of the Development. Consideration of likely significant effects on the environment that may arise during the construction phase, and any necessary mitigation measures, are provided within the respective technical chapters of this ES (Chapters 6-15).

5.2 Planning for construction is necessarily broad at this stage and may be subject to modification. This chapter is based on reasonable assumptions and experience and allows assessment of the realistic "worst case" construction phase effects.

Anticipated Programme

5.3 The construction phase of the Development is anticipated to commence in summer 2024, subject to gaining planning permission, and span approximately two years, with the buildings within the outline element of the application to follow the ground and other works of the full planning application element. Overall, the construction process is expected to be completed by summer 2026.

Construction Methodology

Construction Machinery

5.4 Consideration has been given to the types of plant that are likely to be used during the construction works. The plant and equipment likely to be associated with the construction process comprise:

- 2m planer;
- Asphalt spreaders;
- Concrete placing booms and pumps;
- Concrete pump;
- Delivery trucks;
- Dozer Cats;
- Dumpers;
- Excavators (ranging from 3 Tonne to 50 Tonne);
- Forklift trucks;
- Hand held tools including breakers (pneumatic and hydraulic);
- Mobile access platforms;
- Mobile cranes;
- Mobile elevating work platforms;
- Poker vibrator;
- Power tools including percussion drills, cutting disks, pipe-threaders;

- Ready mix concrete wagons;
- Road paver;
- Road roller; and
- Road sweeper;
- Scaffold;
- Self Propelled Rollers;
- Skips / Skip trucks;
- Tracked/wheeled 360 degree;
- Tractors;
- Vibratory compactor; and
- Wheel washing plant;

Site Preparation, Access Road Construction and Enabling Works

5.5 Site preparation will involve the establishment of on-site parking provision and any construction worker facilities (including Site compound area with offices and welfare facilities for management and construction workers).

5.6 The initial stages of the construction will include the new permanent access routes into the Development from the north of the Site along the A635 and establishing development platforms.

5.7 Enabling works would take place in parallel with the access road construction and comprise:

- Preparation of Health and Safety Plans and Construction Tender Documents;
- Geotechnical and Site Investigations to confirm ground conditions at the Site;
- Arboricultural works – including the protection of trees/vegetation to be retained and removal of trees/vegetation, where applicable;
- Ecological works, where required;
- Installation of any site hoarding and security fencing;
- Ground modelling works including topsoil stripping and stockpiling for later use;
- General clearance; and
- Installation of temporary surface water management measures.

5.8 The initial stages of construction would also include relocation/installation of all necessary utilities and drainage works.

Excavation and Sub-Structure Works

5.9 Excavation work and the preparation of ground works would take place prior to the installation of foundations work on the Site.

5.10 Excavated material from the Site is likely to comprise made ground/topsoil, gravel and clay material. Any clean excavated material that cannot be reused on-Site would be removed by licensed waste carriers.

Drainage works

5.11 The sustainable drainage (SuDS) system will be constructed during the infrastructure works when installing the temporary surface water management measures. All temporary drainage of the construction works will be designed and managed to comply with BS 6031:2009 'The British Standard Code of Practice for Earthworks'[i], which details methods that should be considered for the general control of drainage on construction sites. The residual permanent sustainable drainage system will be implemented in accordance with the site-wide drainage strategies and the principles established in CIRIA C753 'The SuDS Manual'.

5.12 All Site works will be undertaken in accordance with CIRIA document 'Control of Water Pollution from Construction Sites'[ii] which promotes environmental good practice for control of water pollution arising from construction activities. The construction drainage system will be designed and managed to comply with BS6031 'The British Standard Code of Practice for Earthworks'[iii], which details methods that should be considered for the general control of drainage on construction sites. Further advice is contained within the Geotechnical Design, General Rules (BS EN 1997)[iv] which should be read in conjunction with Basis of Structural Design (BE EN 1990)[v].

5.13 Construction vehicles will be properly maintained to reduce the risk of hydrocarbon contamination and will only be active when required. Construction materials will be stored, handled and managed with due regard to the sensitivity of the local water environment and thus reduce the risk of accidental spillage or release will be minimised.

5.14 In accordance with the Control of Pollution (Oil Storage) (England) Regulations 2001[vi], any tanks storing more than 200 litres of oil will have secondary bunding in accordance with Section 3(2)(a). Bunding will be specified having a minimum capacity of *"not less than 110% of the container's storage capacity or, if there is more than one container within the system, of not less than 110% of the largest container's storage capacity or 25% of their aggregate storage capacity, whichever is the greater."* Any above ground storage tanks will be located on a designated area of hardstanding. No underground storage tanks will be used during the construction period. Storage of liquids, such as degreasers, solvents, lubricants and paints, will be in segregated, bunded enclosures.

5.15 The following measures will also be incorporated into the Construction Environmental Management Plan (CEMP):

- Temporary surface water management system, for example oil interceptors, holding tanks to remove suspended sediment before discharge etc;
- Equipment maintenance;
- Wheel washing;
- Covering stockpiles;
- Storage of substances in accordance with applicable legislation;
- Controls on noise, vibration, light and pollution;
- Best practice ecology mitigation; and
- Construction Traffic Management Plan (CTMP).

Construction of Superstructure

5.16 This stage will involve the construction of the Development floorspace located on the Site. It will include the pouring of concrete, the installation of steel frames, external hard surfacing and construction of metal commercial sheds.

Fit Out

5.17 Fit out of the Development's ancillary office uses will involve the installation of dry lining to internal walls, mechanical and electrical installations and finishes. Fit out of the Development's warehousing uses will involve mechanical, electrical and sprinkler installations.

5.18 The construction of the superstructure and fit out will be subject to future reserved matters applications.

Landscaping

5.19 Landscaping works will involve some ground modelling works and the establishment of green spaces within the Site including soil preparation, tree and vegetation planting and seedings. The ground modelling works will be undertaken concurrently with the site preparation and substructure works outlined above. The structural landscaping will be secured through the detailed element of the planning application. The landscaping within each plot will be brought forward as part of reserved matters applications.

Material and Resource Use

5.20 The primary construction materials to be used will include internal and external concrete, steel frame and cladding, timber and tarmac. Where possible, materials and resources used during the construction of the Development will be sourced from the local area. All timber and wood-based products would be sustainably sourced and procured from known and legal sources.

5.21 The off-site re-use, recycling or recovery of construction waste would be maximised where possible. Waste would only be sent to landfill as a last resort if there is no alternative disposal route. Opportunities to reduce waste through careful management and procurement will be set out in the CEMP and secured through planning conditions.

Construction Phase Vehicle Movements

5.22 Construction phase vehicle movements will be managed to minimise the impact on the local road network. Table 5.1 provides an indicative worse case level of average daily one-way movements for each year of construction based on the likely construction materials and phasing of the Development.

Table 5.1: Indicative Construction Traffic

Vehicle Type	Average Daily One Way Movements (Year 1)	Average Daily One Way Movements (Year 2)	Average Daily One Way Movements (Year 3)
HGV	72	150	61
Light Goods Vehicles	17	24	6
Cars	93	197	81
Vans	153	308	123

5.23 HGV movements, including deliveries to the Site, would aim to be dispersed across the working day. The arrival and departure of light vehicles would have some impact during the morning and evening periods; however, it is likely that a significant majority of construction workers would travel outside the network peak periods due to an early daily start on-Site.

5.24 During the initial stages, vehicular movements will solely be associated with construction traffic. As the Development plots are completed, there will be a mix of development and construction traffic. Further discussion is provided in Chapter 13 Transport and Access.

Construction Traffic Access and Management

5.25 Construction traffic is likely to access the Site via the main distributor roads surrounding the Site, including from the northern boundary along the A635 and from the west along the A6195. Once the primary access to the Site is constructed, vehicles will be able to access the Site from the A635. All traffic will be encouraged to avoid local settlement centres. The construction routing detail will be secured through the CTMP, which will form part of the CEMP.

5.26 If abnormal or oversized loads are required to deliver materials to the Site, notice will be given to City of Doncaster Council (CDC), BMBC and National Highways, depending on the routing, and also the Police, the Fire Brigade, and other emergency services, sufficiently in advance of the required closure or diversion dates. Should any hazardous materials arise during the course of the works, these materials will be transported to a licensed disposal site using permitted routes as identified in the CTMP.

5.27 All vehicle unloading will take place within the Site and will not affect public highways or adjacent occupiers.

Parking Management

5.28 Construction workers will be encouraged to access the Site by sustainable means of travel. Information will be provided on convenient walking and cycling routes together with the local bus and rail services to ensure workers are aware of the choices available to them. Workers who choose to drive to the Site will be encouraged to car share, where practical.

Road Network Management

5.29 The Principal Contractor would co-ordinate all deliveries and collections to/from the Site, and ensure that as far as possible:

- All delivery and collection vehicles are aware of the proposed routing;
- Larger vehicle movements would be scheduled to avoid peak hours on the local road network if possible;
- The relevant highway authorities will be advised in advance of any large or abnormal construction traffic and appropriate routing agreed; and
- If an alternative construction traffic route is required, this would first be agreed with the highway authority.

5.30 All management of construction traffic and access will be carried out in accordance with a CTMP as set out below:

- Planning and managing both vehicle and pedestrian routes;
- The elimination of reversing, where possible;
- Safe driving and working practices;
- Considerate driving and working practices;
- Protection to the public;
- Adequate visibility splays and sight lines;

- Provision of signs and barriers;
- The safe movement of materials in any public areas; and
- Adequate parking for off-loading storage areas.

Controls to Protect the Environment

5.31 The environmental controls (or mitigation measures) to eliminate, reduce or offset likely significant adverse effects on the environment during the construction phase (as identified above) are identified below. It is anticipated that these controls will be secured by appropriately worded planning conditions or obligations:

- Preparation of CEMPs, including the CTMP, which clearly sets out the methods of managing environmental issues for all involved with the construction works, including supply chain management. These will need to accord with the overarching CEMP Framework submitted as part of the planning application;
- Requirement to comply with the CEMP included as part of the contract conditions for each element of the work. All contractors tendering for work will be required to demonstrate that their proposals can comply with the content of the CEMP and any conditions and/or obligations secured through the planning permission;
- In respect of necessary departures from the above, procedures for prior notification to BMBC, as appropriate, and affected parties will be established;
- Establishing a dedicated point of contact and assigning responsibility to deal with construction-related issues if they arise. This will be a named representative from the construction team; and
- Regular dialogue with BMBC and other relevant stakeholders.

5.32 The preparation of a CEMP is an industry standard and established method of managing environmental effects resulting from construction works.

5.33 The CEMP will be submitted to BMBC prior to the commencement of the works. Compliance with the CEMP Framework will be secured by planning condition. The structure of the CEMP will include the following as set out in the CEMP Framework:

- A table showing the objectives, activities (mitigation/optimisation measures) and responsibilities for the implementation of those activities;
- The broad plan of the work programme including working hours and delivery times;
- Details of prohibited or restricted operations (location, hours etc.);
- Institutional arrangements for its implementation and for environmental monitoring: responsibilities, role of the environmental authorities and participation of stakeholders;
- Contact during normal working hours and emergency details outside working hours;
- Provision for reporting, public liaison and prior notification of particular construction related activities;
- The mechanism for the public to register complaints and the procedures for responding to such complaints; and
- The details of proposed routes for HGVs travelling to and from the Site.

Site Offices and Welfare Accommodation

5.34 Specific offices and accommodation for construction staff will be required and located on-Site.

Hours of Work

5.35 Working hours on the Site during the construction phase have been agreed with BMBC and comprise:

- Monday to Friday, 8am to 6pm;
- Saturday, 8am to 1pm; and
- No work will commence on the Site on Sundays or Bank Holidays.

5.36 All noisy works outside these hours will be subject to prior agreement of, and/or reasonable notice to BMBC, as appropriate.

5.37 Night-time working will be restricted to infrequent circumstances, and will be undertaken following prior arrangement with BMBC. By arrangement, there may be some out of hours construction deliveries made to the Site.

Management of Construction Works

5.38 All contractors will be required to complete a method statement and risk assessment and obtain a works permit from their organisation prior to commencement on-Site.

Response to Complaints

5.39 Any complaints will be logged on-Site and, where necessary, reported to the relevant individual within BMBC, as appropriate, (and vice versa) as soon as practicable.

Prior Notice

5.40 In the event of unusual activities or events, these will be notified to BMBC, as appropriate, and relevant property owners or occupiers in advance. The relevant activities will be agreed with BMBC, as appropriate, once the detailed programme of construction is defined. This will include:

- Necessary night-time, weekend or evening working (outside core areas) of a type which may affect properties; and
- Road or footpath closures/diversions and movements of wide loads (unlikely to be required).

5.41 During the construction works measures would be implemented to ensure that the local community and workers are not adversely affected. These measures would include the use of appropriate Site hoarding, dust management procedures and construction traffic management.

REFERENCES

[i] BS 6031:2009 The British Standard Code of Practice for Earthworks.

[ii] CIRIA C532 (2001) Control of Water Pollution from Construction Sites Guidance for consultants and contractors

[iii] British Standards Institution (December 2009) BS6031:2009 Code of Practice for Earthworks

[iv] British Standards Institution (December 2004) BS EN 1997-1:2004 Eurocode 7. Geotechnical Design. General Rules.

[v] British Standards Institution (2002) BS EN 1990: 2002 Basis of Structural Design

[vi] The Control of Pollution (Oil Storage) (England) Regulations 2001/2954