



The Sizewell C Project

6.4 Volume 3 Northern Park and Ride Chapter 2 Description of the Northern Park and Ride

Revision: 1.0
Applicable Regulation: Regulation 5(2)(a)
PINS Reference Number: EN010012

May 2020

Planning Act 2008
Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009



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2 Description of Development

2.1 Introduction

2.1.1 This chapter of the **Environmental Statement (ES)** has been prepared in respect of the northern park and ride at Darsham (referred to throughout this volume as the ‘proposed development’). The proposed development would be temporary to support the construction of the Sizewell C main development site. The illustrative masterplan for the proposed development is provided in **Figure 2.1**.

2.1.2 The northern park and ride site (herein referred to as the ‘site’), forms part of the Sizewell C Project to which this application for a Development Consent Order (DCO) relates. The proposed development would play an important role in reducing the amount of additional traffic generated by the construction workforce on local roads and through local villages. Two park and ride facilities are proposed – one at Darsham for construction workers approaching Sizewell from the north on the A12, and the other at Wickham Market for those approaching from the south on the A12 (see **Volume 4** of the **ES**). Both park and ride facilities would also intercept traffic movements from locations west of the A12. The construction workforce would then be transported to and from the Sizewell C main development site by bus.

2.1.3 Further detail on the park and ride facilities, in the context of the wider construction transport strategy, is provided in the Sizewell C Project overview in **Volume 1** of the **ES**. Further details on the site selection and design evolution process can be found in **Chapter 3** of this volume, the **Site Selection Report** appended to the **Planning Statement** (Doc Ref. 8.4) and the **Consultation Report** (Doc Ref. 5.1). The **Planning Statement** also contains further detail on the DCO proposals and a site specific Planning Statement for the proposed development at **Appendix B** (Doc Ref. 8.4). **Appendix 2A** of this chapter contains a set of the proposed development drawings for the northern park and ride.

2.1.4 This chapter presents a description of the proposed development, including:

- The general site layout, site access, buildings and structures, utilities and drainage, landscaping, security and lighting.
- The parameters which identify defined envelopes within which future development would be undertaken.
- The sequence and methods for construction, including material quantities and number of construction personnel and vehicles.

- The operation of the park and ride (e.g. number of vehicles using the facility and frequency of bus services to and from the main development site).
- The removal and reinstatement of the site once construction of Sizewell C main development site is complete.

2.2 Site masterplan and design

2.2.1 The site comprises approximately 27.9 hectares (ha) of predominantly agricultural land but also includes sections of the A12 and Willow Marsh Lane towards the north of the site. It is located west of the village of Darsham and west of the A12, to the east of the East Suffolk line, and to the north of Darsham railway station (see **Chapter 1, Figure 1.1** of this volume). Further detail on the site and the environmental baseline is provided in **Chapters 1 and 4 to 12** of this volume of the **ES**.

2.2.2 This section describes the proposed masterplan for the proposed development, including:

- site layout/general arrangement;
- site access;
- buildings and structures;
- landscaping and ecology;
- utilities and drainage; and
- security and lighting.

2.2.3 The masterplan for the proposed development is shown in **Figure 2.1**. The masterplan is illustrative and shows an indicative arrangement that would fulfil the objectives of the proposed development. The proposed development would be controlled by parameters rather than providing a detailed design at this stage. The Environmental Impact Assessment (EIA) has assessed the parameters set out in **section 2.3** of this chapter.

2.2.4 The final proposals for the proposed development, following detailed design, will be in general accordance with the relevant sections of the **Associated Development Design Principles** (Doc Ref. 8.3) and in accordance with the relevant plans set out in Schedule 6 and Schedule 7 of the Draft DCO (Doc Ref. 3.1) , save to the extent that alternative plans or details relating to siting, scale or appearance are submitted by the undertaker and approved by the local planning authority.

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a) Site layout/general arrangement

2.2.5 **Figure 2.1** provides a layout plan that illustrates the proposed parking areas, welfare and security buildings, structures, and the internal road layout which would be accessed from the A12 via a proposed roundabout at the north of the site.

2.2.6 The proposed development would comprise:

- Car parking areas for up to 1,250 car parking spaces (of which up to 40 would be accessible spaces) and up to 12 pick up only spaces.
- Up to 10 spaces for minibuses/vans/buses.
- Up to 80 motorcycle parking spaces.
- Cycle shelters for up to 20 bicycles.
- Bus terminus area, including shelters.
- Security fencing and lighting.
- An amenity and welfare building comprising toilets and staff room.
- A security building including an administration office.
- A security booth adjacent to an exit loop for errant vehicles.
- A smoking shelter.
- Two landscape bunds and additional planting.
- Up to three infiltration basins, an existing pond and nine swales forming part of the Sustainable Drainage System (SuDS).
- A temporary three arm roundabout on the A12, situated approximately 125 metres (m) to the north of the existing Willow Marsh Lane junction, to access the site.
- Realignment of the A12 via the temporary roundabout.
- A section of Willow Marsh Lane will be closed for vehicular traffic from the A12 but retained for use by non-motorised users and as a private vehicular access for White House Farm. A dropped kerb would be provided where Willow Marsh Lane meets the A12 to facilitate access for cycles and pedestrians only.
- An access road will run from the new roundabout through the centre of the site to the car parking areas and proposed buildings.

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- Provision of a separate agricultural track, on the west side of the proposed roundabout, north of Willow Marsh Lane.
- Diversion of a 11 kilovolt (kV) UK Power Networks overhead power line including undergrounding of the line.
- Other ancillary development, including signage, road markings, lighting, CCTV and utilities.
- External areas including roadways, footways, landscaping, and drainage infrastructure.

2.2.7 Existing boundary vegetation would be retained where possible, with additional screening from the proposed landscape bunds and security fencing where necessary, to provide visual screening from local residential properties, the A12 and local public rights of way (PRoWs).

2.2.8 Soft landscaping, comprising grassed areas and suitably sited tree and shrub planting, would be provided whilst the site is operational and would be removed as part of the removal and reinstatement of the site. However, where agreed with the landowner of the site, the screen planting provided around all boundaries of the site during construction and operation would be left *in situ* following the removal of the proposed development and reinstatement of the site.

2.2.9 All mechanical services plant (such as air conditioning condenser units and air handling units) would be selected to ensure that noise emissions are minimised and fall within acceptable limits.

b) Site access

2.2.10 A temporary roundabout on the A12 and access road, would provide vehicular access to the site. The proposed roundabout would have a diameter of approximately 60m. It would make provision for Abnormal Indivisible Loads (AILs) to traverse the junction by including a removable part of the central island and removable splitter islands on the A12 north and south arms. It would be designed to Design Manual for Roads and Bridges standards (Ref. 2.1) for a 40 miles per hour (mph) road speed. Accordingly, it is proposed to extend the 40mph limit north by approximately 250m from its current location near the Willow Marsh Lane junction, with the agreement of Suffolk County Council.

2.2.11 A separate agricultural track, approximately 5m wide, would be provided on the west side of the proposed roundabout, north of Willow Marsh Lane, to maintain access to an existing private agricultural track to the north. The existing track currently runs alongside the A12 to the west, and would be temporarily extinguished during all phases of the proposed development, and reinstated

following the removal of the proposed roundabout and the reinstatement of the existing A12 alignment.

- 2.2.12** The proposed access road would be the western arm of the proposed roundabout, which would cross the existing Willow Marsh Lane to enter the northern end of the park and ride facility. A new T-junction would connect the existing Willow Marsh Lane alignment to the access road. The access road would direct traffic to the proposed parking areas and main facilities, passing through a gap in the landscape bunds. The section of Willow Marsh Lane which connects to the existing A12 would be retained for non-motorised users, and as a private vehicular access for White House Farm.
- 2.2.13** There is also space provided for drainage in the form of swales adjacent to the roundabout and access roads, and a potential infiltration basin (if infiltration testing deems it to be required) to the west of the A12, north of the proposed temporary roundabout.
- 2.2.14** As shown in **Figure 2.1**, a security booth and exit loop would be positioned to the north of the bunds to check vehicles before they enter the proposed parking areas, and to allow errant vehicles to turn and exit.
- 2.2.15** The proposals do not require changes to be made to the northbound and southbound laybys to the north of the petrol station (Darsham Service Station) on the A12.
- 2.2.16** There would be a pedestrian route from Darsham railway station along the footway on the A12 to the south-east of the site. Pedestrians accessing the site would leave the A12 and enter through a security gate provided in the security fencing. Further details of access measures (such as key fobs, CCTV, intercom system) would be agreed at the detailed design stage.

c) Buildings and structures

- 2.2.17** **Figure 2.1** illustrates the proposed buildings and structures to be located within the site, namely an amenity and welfare building (which will include toilets and a staff room), shelters (bus, cycle and smoking), a security building (including an administration office) and a security booth. The parameters for the buildings and structures for approval are provided in **Table 2.1**, and are shown on the parameter plans provided in **Figure 2.6**.
- 2.2.18** The overall design for the proposed buildings and structures has followed the **Associated Development Design Principles** (Doc Ref. 8.3), and has been driven by the desire to make the proposed development as unimposing as is reasonably possible, being of a scale that limits visual impact without compromising functionality.

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2.2.19 The proposed buildings on-site would comprise prefabricated modular units, finished in natural colours where they are visible from public viewpoints. They would be temporary and single storey, to be removed following the construction of the Sizewell C main development site. The detailed design of these buildings would be developed within the identified parameters (detailed in **section 2.3**), recognising that, although temporary in nature, the proposed development would be *in situ* until it is no longer required for the construction of the Sizewell C Project, which is expected to last 9–12 years.

d) **Landscaping and ecology**

2.2.20 The landscaping for the site has been designed specifically to minimise potential effects on noise, ecological, heritage, and landscape and visual receptors through the retention of existing vegetation where possible, as well as the provision of soft landscaping, landscape bunds and planting. The illustrative landscape plan is shown on **Figure 2.1**. All proposed tree and shrub planting would use native species.

2.2.21 Existing woodland and hedgerows would be retained where appropriate, with hedgerows along the eastern and northern site boundaries supplemented with further planting to infill existing gaps. There would also be additional temporary soft landscaping and suitably sited tree and shrub planting within the car parking areas.

2.2.22 Hedgerows would be planted around the proposed roundabout on the A12, to replace those lost during the construction of the roundabout and access road. These would be removed and the existing hedgerow alignments reinstated during removal and reinstatement.

2.2.23 There would be additional hedgerow planting along the southern side of Willow Marsh Lane where there is no hedgerow at present. This would have the dual-purpose of providing ecological mitigation and also providing some visual screening benefit.

2.2.24 The parking areas and main facilities on site would be bounded by a 1.8m high security fence. This security fence would prevent personnel using the proposed development from accessing the surrounding habitats.

2.2.25 This would have the added benefit of reducing disturbance, habitat damage and littering within Little Nursery Wood, adjacent to the site to the west. A buffer of 20m between Little Nursery Wood and the park and ride facility would be maintained and the security fence would also be sufficient to prevent access to the parking areas and main facilities by badgers.

2.2.26 3m high landscape bunds would be located along part of the eastern boundary and north of the proposed car parking area (with the proposed access road passing between them). These landscape bunds would aid in

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the screening of the proposed development from the adjacent landscape. This would also provide acoustic screening, as outlined in **Chapter 4** of this volume.

- 2.2.27** Badger fencing would be installed around the landscape bunds to prevent badgers establishing setts within the site boundary and so minimise constraints during removal and reinstatement.
- 2.2.28** A 10m buffer in the south-west of the site, and in the east where residential properties back onto the site would also be maintained. The existing pond and vegetation within this 10m buffer zone would be excluded from the main parking area and retained to enhance great crested newt habitat.
- 2.2.29** All proposed SuDS, landscape bunds and facilities would be positioned outside of these buffer zones, where practicable. Existing ditches, the watercourse and the pond within the buffer zones would be retained.
- 2.2.30** One way directional newt fencing would be installed (at the start of construction) around the perimeter of the car parking areas, swales and landscape bunds, and would be sited to prevent great crested newts from entering the site but allow them to leave should they accidentally gain access.
- 2.2.31** Security fencing and the landscape bunds would be sited to ensure that the existing pond on site, adjacent to the eastern boundary, is excluded from the parking areas and main facilities, in order to maintain connectivity with existing, suitable great crested newt habitats. This approach would eliminate the need to translocate great crested newts away from the landscaped margins of the site when these areas are returned to agriculture use. This fencing would be installed at the start of construction, maintained throughout operation, and would remain in place until the end of the removal and reinstatement works.
- 2.2.32** Two small pipes or culverts would be placed beneath the new access road to allow the passage of great crested newts underneath the road. One of these would be on the north side of the landscape bund, and one would be at the point at which the new access road meets Willow Marsh Lane. Great crested newts would be directed to the culverts by one-way directional newt fencing.
- 2.2.33** The planting of hedgerow along the southern side of Willow Marsh Lane with a rough, unmanaged grassland margin adjacent, and extending along the eastern and western site boundaries would minimise great crested newt habitat severance and habitat loss, facilitate continued access to foraging and hibernation sites within Little Nursery Woodland, and allow connectivity between the existing ponds located adjacent to the eastern boundary, both within and outside of the site (within the neighbouring residential land).

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Further details on the ecological landscaping mitigation measures are provided within **Chapter 7** of this volume of the **ES**.

2.2.34 The landscape planting would be maintained and managed as appropriate throughout the operation of the proposed development, with the replacement of plants which fail to establish as required.

2.2.35 The planting within the parking areas would be removed during the removal and reinstatement works to return the relevant parts of the site to agricultural use. Where agreed with the landowner of the site, the screen planting provided around all boundaries of the site during construction and operation would be left *in situ* following the removal of the proposed development and reinstatement of the site.

e) Utilities and drainage

2.2.36 It is envisaged that construction drainage would be contained within the site through the implementation of temporary SuDS early during construction. Foul sewage arising on site during construction from the temporary welfare facilities will be collected and tankered off site for appropriate treatment and disposal until the operational package treatment plant and septic tank are in place.

2.2.37 In terms of drainage features during operation, the proposed development would comprise SuDS to attenuate surface water run-off and minimise sediment generation. The SuDS are anticipated to consist of approximately nine swales and up to three potential infiltration basins. The illustrative drainage plan, including the indicative design and position of the swales and infiltration basins, are shown in **Figure 2.4**.

2.2.38 The proposed drainage strategy for the proposed development would be to drain the surface water run-off through infiltration techniques, such as heavy-duty permeable block paving, infiltration trenches, and/or catchpit soakaways, with the infiltration basins and swales providing additional storage. The swales and infiltration basins are part of the SuDS system which moves run-off around the site, allowing natural filtration and infiltration. Exceedance discharges are perceived to be small and infrequent and are not expected to represent a flood risk or danger to life. However, in the unlikely event of an exceedance event, exceedance flows would be routed via the access roads to the lowest parts of the site.

2.2.39 Permeable surfaces would be used where possible, e.g. in the main car parking area. Rainwater will percolate through the surface and be temporarily stored in the base of the paving and then be disposed to ground by infiltration. However, some surfaces, such as the access roads, will require impermeable surfaces.

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- 2.2.40 Road paved areas and locations where there is a risk of potential highway run-off pollution will be designed to be impermeable. Rainfall run-off water will be removed from the surface via highway gullies, combined kerb drains and channels, etc. These will discharge into an underground drainage network which will outfall to swales and infiltration basin where the rainfall run-off will infiltrate to ground. If required, the underground drainage network will include a Class 1 Bypass Separator which will remove pollutants prior to discharge into the swales/infiltration basins.
- 2.2.41 Run-off from roofed areas would be drained via downpipes and collected in an underground drainage network. The run-off from roofed areas will be combined with run-off from paved areas either within the piped network (after run-off from the paved areas has passed through the bypass separator) or within the SuDS system.
- 2.2.42 Whilst it is proposed that all on-site surface water drainage would be infiltrated to ground, if infiltration testing indicates that this is not entirely possible there may be some discharge to the existing local ditch network. If 100% infiltration is not achievable, a controlled flow at greenfield rates to the watercourse may be required. All on-site water would pass through swales (and the bypass separator in the case of rainfall run-off from the impermeable areas) before being discharged to the local ditches.
- 2.2.43 Foul sewage from the operational facility would be treated on-site via a package treatment works, prior to its discharge to ground via the SuDS infrastructure. There would also be a septic tank serving the more isolated security booth, on the access road just south of Willow Marsh Lane, with field drain infiltration.
- 2.2.44 In terms of utilities, connections would be made to existing local utility services (such as electricity and data) in the public highway, where practicable. Upgrade work would be required to the UK Power Networks pole mounted transformer serving the existing over-head power lines, which is already close to the site boundary. Up to two ground mounted substations in glass reinforced plastic enclosures would replace the pole mounted transformer with the doors facing the A12, making it easy to access and maintain the substations via the existing footway without affecting existing or proposed on-site operations. The substations would also not affect the agricultural use of the site once the proposed development is removed and the land reinstated.
- 2.2.45 The location and design of the substations will be fully developed and assessed with UK Power Networks through their formal application process at the relevant time. UK Power Networks has indicated that a location close to the boundary can be agreed but it would also depend on the location of

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the low voltage cable feeding it. In any case, a solution can still be agreed with minimum impact on existing agricultural operations.

2.2.46 Through the southern part of the site, the overhead lines need to be diverted below ground, UK Power Networks has confirmed that the deepest depth for any underground cable shall be 1.05m and it is the standard depth they work to on agricultural land. This is to avoid deep excavation in case they need to access the buried cable in future.

2.2.47 Any utility services put in place on-site as part of the construction of the proposed development would be removed during the removal and reinstatement works once the park and ride facility is no longer required. Engagement is ongoing with utility companies to confirm suitable points of connection within the highway.

2.2.48 As well as the utilities mentioned above, there are two private water pipes running through the site. The first is an old drainage system to the rear of White House Farm, which takes rainwater from the farm towards the railway line to the west. The second is a private water main supplying Willow Marsh Cottage, running along the southern side of Willow Marsh Lane.

2.2.49 The exact location of these private, underground pipes would need to be established using trial holes prior to works commencing on site. However, it is reasonable to assume that any water pipes would be at least 1m deep to prevent freezing in cold weather and as neither pipe has been affected by agricultural works on the existing site. Should it be found that the pipes require diverting, this will form part of the detailed drainage design.

f) **Security and lighting**

2.2.50 Lighting would be provided at the roundabout and access road, around the security fencing, and within the car parking areas for security and safety reasons. The security fencing would be set away from the site boundaries to surround the functional park and ride facility, including the entrance to the facility, the parking areas and internal access roads. This is necessary to mark the boundary of the operational parts of the site, and provide security to the site throughout all phases of the proposed development.

2.2.51 In terms of security, the proposed development would comprise:

- security fencing, to a maximum height of 1.8m, bounding the parking areas and main facilities; and,
- close-boarded fencing along the internal side of the security fence where it abuts Little Nursery Wood.

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- 2.2.52 Security would be provided on-site, to be staffed 24 hours a day, supported by CCTV along the security fencing and inside the site, which would be monitored from the on-site security building and security booth.
- 2.2.53 In terms of lighting, the proposed development would comprise:
- lighting, to a maximum height of 6m including lanterns, along the internal access road, within the proposed parking areas and along the security fencing (for security and safety reasons); and
 - lighting, to a maximum height of 8m including lanterns, at the proposed temporary roundabout on the A12 and along the access road to the north of Willow Marsh Lane to be in accordance with a Suffolk County Council compliant highway lighting design.
- 2.2.54 An illustrative lighting plan is provided in **Figure 2.5**.
- 2.2.55 In terms of lighting strategy, regard has been given to minimising potential effects on neighbouring residential occupiers and ecological receptors, given that dark skies are a valued feature in the locality.
- 2.2.56 Operational lighting for the proposed development would be designed to prevent light spill to Little Nursery Wood and other habitats, and light levels would not exceed 0.1lux along the eastern side of this wood. The lighting design for the proposed development would use light fittings chosen to limit stray light. These measures would minimise impacts on nocturnal species, such as bats that use the nearby tree lines or habitats for roosting or foraging.
- 2.2.57 Lighting will also be directed away from the site boundaries to minimise nuisance to adjacent properties. If lights cannot be positioned in such a way because of physical constraints or for safety reasons, then localised screening of the lights, including shielding of luminaires with demountable shields to reduce the backward spill of light, will be used to reduce disturbance where appropriate. The lanterns would utilise LED based light fittings, to ensure energy efficiency, with zero-degree tilt.
- 2.2.58 To further assist in mitigating obtrusive light, a Central Management System (CMS) has been proposed for the lighting which would be capable of dimming parts of the site independently from others (with the site envisaged to be divided into six to eight main sections), as usage changes through the day. The system would be controlled on-site and would allow for seasonal variations in the operational hours of the external lighting and would have the following functionality:
- dimming of groups of external lights;
 - energy monitoring and reporting; and

- fault reporting.

2.3 Parameters

2.3.1 SZC Co. has adopted a parameters approach which defines the envelope for the proposed development. A parameter approach has been adopted in order to ensure that the design process has adequate flexibility in order that the Sizewell C Project can be delivered. This approach has followed the Rochdale Envelope, as set out in PINS Advice Note Nine (Ref. 2.2). These parameters have informed the assessment presented in the **ES** and the flexibility being sought is consistent with the findings of the **ES**. The assessment has used a reasonable worst case basis on which to assess and mitigate potential adverse impacts arising from the scheme.

2.3.2 The site location plan and illustrative masterplan are shown in **Figure 1.1** and **Figure 2.1** of this volume respectively. **Figure 2.1** illustrates one possible iteration of a scheme delivered within the defined parameters set out within the application. The parameters of the site assessed within the **ES**, within which the proposed development may be constructed, operated and maintained are then shown on the parameter plan as seen in **Figure 2.6**.

2.3.3 **Schedule 1** of the **Draft DCO** (Doc Ref. 3.1) describes the authorised development. The **Draft DCO** states that the development will be constructed, operated and maintained anywhere within the lines or situations shown on the **Work Plans** (and in accordance with the approved plans, to include the **Parameter Plans**), and in accordance with the design principles set out in the **Associated Development Design Principles** (Doc Ref. 8.3). The **Draft DCO** also states that the undertaker may deviate vertically to any extent found necessary or convenient.

2.3.4 The parameters of the proposed development assessed within the **ES** are contained within the following:

- Parameter plan (provided in **Figure 2.6**) – this identifies zones within which specific buildings, structures and works identified in the parameter table (see **Table 2.1**) must be located.
- Parameter table (see **Table 2.1**) – this identifies maximum building dimensions within the zones shown on the parameter plan (**Figure 2.6**).

2.3.5 The EIA has assessed the illustrative masterplan and the parameters.

Table 2.1: Parameters for approval for the Northern Park and Ride at Darsham.

Parameter Plan Zones	Building/Structure/Works	Maximum Dimensions for approval (m) (height x width x length)
Zone 1	Park and ride facility to include parking areas, lighting, drainage and other landscaping and planting.	
Zone 1A	Amenity and welfare building.	4 x 7 x 14
	Security building.	4 x 5 x 12
	Shelters (smoking/cycle).	3 x 5 x 10
	Bus shelters	3 x 5 x 10
Zone 2	Security booth.	4 x 5 x 12
Zone 3	Indicative position of landscape bunds.	3m in height

2.4 Description of construction

2.4.1 This section provides an overview of the construction of the proposed development, highlighting the key construction activities, including:

- construction sequence and durations;
- estimated construction vehicles;
- a description of road and footpath realignments, diversions or closures;
- anticipated construction plant and equipment;
- anticipated construction workforce;
- indicative material quantities;
- an overview of construction waste; and
- an overview of construction environmental and traffic management arrangements.

2.4.2 The construction arrangements described in this section provide the basis for the assessment presented in this volume. The details of construction are necessarily broad, and may be subject to modification during the detailed design stage and/or once a contractor has been appointed.

2.4.3 Construction work would take place during Monday to Saturday 07:00 to 19:00 hours, with no working on Sundays or bank holidays. However, some activities may require work outside of these hours. Where this is the case, East Suffolk Council would be notified in advance.

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2.4.4 Site access for the proposed development would be located as far as practicable, and at least 10m, from nearby residential properties.

a) **Construction sequence and duration**

2.4.5 It is expected that construction work for the proposed development would take place over a period of approximately 12–18 months and is expected to be operational within the early years of the Sizewell C Project construction programme as shown in the Indicative Phasing Schedule in the **Implementation Plan** appended to the **Planning Statement** (Doc Ref 8.4). This would enable the proposed development to be in place as soon as possible to support the construction of the Sizewell C main development site.

2.4.6 The construction process broadly comprises five overlapping phases, as follows:

- Phase 1: Enabling works (duration approximately two months) – this would include protection and diversion of utilities, site clearance, creation of temporary SuDS, earthworks, and the formation of a separate, secure and safe temporary haul route, accessing the site from the existing A12 at the junction with Willow Marsh Lane.
- Phase 2: Earthworks and excavation (duration approximately three months) – clearance of vegetation, levelling of the site to the south and west and roundabout site to the north, adjacent to the A12. Removal of top-soil and potentially sub-soil, in line with the **Outline Soils Management Plan**, provided in **Volume 2, Appendix 17C** of the **ES**. The excavated soil would form the proposed landscape bunds, which would be created to provide visual and acoustic screening early in this phase. A temporary construction compound, which would include a site management, and security office, materials and storage areas, site parking and internal site access routes, would then be formed behind the bunds with construction work (excavation and earthworks) able to begin at both the southern end of the site and on the roundabout to the north, adjacent to the A12. In parallel, SuDS would be installed and security fencing would be installed around the operational areas of the proposed development, replacing any temporary fencing which enclosed the working area.
- Phase 3: Laying of materials for parking areas and internal circulation routes and construction of roundabout and A12 realignment (duration approximately nine months) – delivery of, and laying of base materials by truck to the parking and circulation route areas, and local movements by excavator and possibly bulldozer, some compaction of the base layers, drainage work and kerb work. Paving work is assumed to take place with concrete/stone cutting at various places around site. In

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parallel, similar work would be undertaken to construct the roundabout. Once the hardstanding for the southern parking area and the roundabout has been constructed, the construction compound would be moved to the southern parking area to allow for the laying of the central parking area. The new roundabout would be completed early in the stage and used for construction vehicle access to the site.

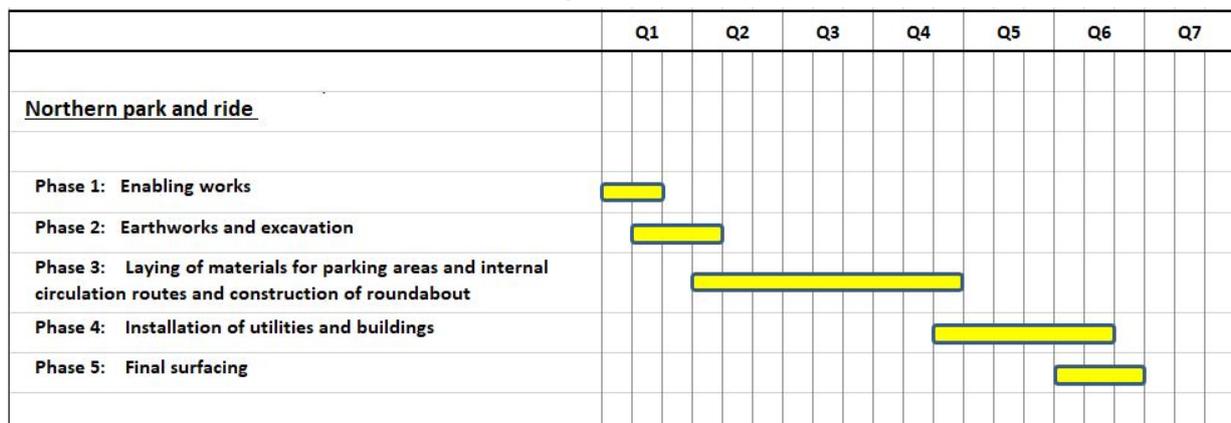
- Phase 4: Construction and fit out of buildings, and installation of utilities (duration approximately six months) – construction and fitting out of prefabricated modular buildings with external cladding, installation of lighting, CCTV masts, water and power supply cables, and installation of bus shelters, automatic access barriers and signage. Pad foundations are expected to be used for structures built on-site, no requirement for piling has been identified.
- Phase 5: Final surfacing (duration approximately three months) – construction of the final surface layer of the roundabout, approach roads, parking areas and circulation routes, and completion of access including delivery, application and rolling finish layer to roundabout, car parking areas and access way, prior to completion of road markings and signage.

2.4.7 In relation to Phases 1 and 2, the proposed site clearance plan is provided in **Figure 2.2**.

2.4.8 It is anticipated that parking spaces could be provided incrementally during construction as demand increases.

2.4.9 The indicative construction programme for the proposed development is provided in **Plate 2.1**.

Plate 2.1: Indicative construction sequence



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- 2.4.10 Early during construction, bunds, swales and infiltration basins would be used as appropriate to ensure that surface water run-off would be contained within the site.
- 2.4.11 A 10m buffer would provide separation between construction work and the existing pond to minimise disturbance.
- 2.4.12 Soil stripped as part of the works (in accordance with the **Outline Soils Management Plan** provided in **Volume 2, Chapter 17, Appendix 17C** of the **ES**) and materials generated from the earthworks and excavation would be re-used in landscaping bund formation for the proposed development, where suitable.
- 2.4.13 Working areas within the site would be secured with 1.8m high fencing.
- 2.4.14 As construction would take place during normal working hours 07:00 to 19:00 Monday to Saturday, then some lighting may be required during the winter months, depending on the construction activities taking place. The only lighting required at night would be for site security, unless 24-hour working is required on an *ad hoc* basis, for which East Suffolk Council would be notified in advance. Security lighting would be provided at the minimum light levels required and would be directed away from site boundaries to minimise nuisance to adjacent properties and other receptors.
- 2.4.15 There are 11kV UK Power Networks overhead power lines running over part of the site. The overhead lines need to be diverted below ground, and UK Power Networks has confirmed that the deepest depth for any underground cable shall be 1.05m as it is the standard depth they work to on agricultural land. This is to avoid deep excavation in case of the need to access the buried cable in future. It is envisaged that any works required to divert the UK Power Networks overhead lines would begin in Phase 1.

b) Estimated construction vehicles

- 2.4.16 It is anticipated that a temporary construction access point would be provided to the site off the A12, most likely using the junction with Willow Marsh Lane, to allow vehicles to access the site. All site traffic would be required to park within the site boundary to avoid any congestion in the surrounding areas.
- 2.4.17 As detailed in the **Transport Assessment** (Doc Ref. 8.5), the proposed development is expected to generate up to 21 heavy goods vehicles (HGV) (each way) movements per day during construction (42 HGV movements in total). Peaks would be related to specific activities, for example, road surfacing. There are also expected to be up to 91 car trips per day (each way; 182 movements) during construction of the proposed development. There would be an additional 27 car trips per day (each way; 54 movements) for those working on the construction of Yoxford junction and the junction of the

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A12 and A144, south of Bramfield, who would park on the northern park and ride construction site, along with the provision of two buses per day (each way) taking workers to and from the Yoxford junction construction site. Therefore, it is expected that there would be a total of 141 vehicle trips each way (282 movements in total) per day during construction.

c) Road or public rights of way realignments, diversions or closures

2.4.18 During construction, roads and PRowS would remain open or an alternative route provided, where reasonably practicable. The private access track, which currently runs north from White House Farm on the west side of the A12, would be temporarily extinguished with an alternative route provided via Willow Marsh Lane, and an accommodation track to the west of the proposed roundabout. The existing route would be reinstated following the removal and reinstatement works for the proposed development.

2.4.19 Construction of the proposed roundabout and realignment of the A12 would predominantly take place offline (i.e. constructed along or nearby existing routes, which will remain open during construction). However, temporary traffic management measures and local width restrictions on the A12 would likely be required at the tie-ins for up to two months, at the end of the roundabout construction period.

2.4.20 Access to and from Willow Marsh Lane from the A12 would remain unaffected throughout construction. However, upon completion of the roundabout, vehicular access to Willow Marsh Lane from the A12 junction would be stopped up and motorised vehicles would access Willow Marsh Lane via the western spur of the proposed roundabout. The section of Willow Marsh Lane, between the A12 and the access road leading into the site would be closed to vehicular traffic. This section of Willow Marsh Lane would remain open to non-motorised users from the A12, and would provide private access to and from White House Farm via the proposed roundabout.

d) Anticipated construction plant and equipment

2.4.21 The anticipated plant and equipment required for construction is set out in **Table 2.2**.

Table 2.2: Anticipated plant and equipment for construction.

Construction Phase.	Plant/Equipment.
Phase 1.	Chainsaws and brush-cutters as necessary for site clearance. 1 x 360 tracked excavator for site entrance works.
Phase 2.	2 x 360 tracked excavators. 2 x bulldozer.

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Construction Phase.	Plant/Equipment.
	32 x dump truck. 1 x vibratory roller.
Phase 3.	1 x pneumatic-tyred rough or all terrain crane. 2 x truck mounted concrete pump and boom arm. 1 x concrete mixer truck. 1 x compressor. 1 x concrete cutting (hand-held circular saw). 2 x electric bolter. 2 x diesel water pumps. 1 x diesel generator. Pneumatic hand tools. Compaction plant including vibratory rollers/plates.
Phase 4.	1 x tracked excavator. 1 x auger drill. 1 x flat-bed lorry. 1 x small crane.
Phase 5.	1 x road planer. 1 x motor grader. 1 x road roller. 1 x asphalt paver (and tipper lorry).

e) Construction workforce

2.4.22 The number of workers required to construct the proposed development would change during the course of the construction programme. Peaks would be related to specific activities, for example road surfacing. It is estimated that the peak construction workforce would be approximately 60 persons on the construction site at any one time.

2.4.23 Security would be provided on-site during construction, to be staffed 24 hours a day, supported by CCTV along the security fencing, and within the parking areas, which would be monitored from the on-site security facilities.

f) Indicative material quantities

2.4.24 The indicative materials and the quantities required for the proposed development can be found in **Table 2.3**.

Table 2.3: Indicative material quantities.

Material	Approximate Mass of Materials Required (tonnes).
Concrete	8,450
Bitumen	11,900

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Gravel (sub-base, capping layer, drainage)	33,650
Steel	100
Other (including fencing, lighting, CCTV, drainage goods)	3,100

2.4.25 It is not intended that any earthworks materials would be removed from the site.

g) Waste

2.4.26 Additional ground investigation would be required prior to the detailed design stage to confirm the waste to be generated. Waste generated from the construction and earthworks activities of the proposed development is likely to include:

- vegetation;
- packaging, including wood pallets, plastics, cardboard, tins;
- plasterboard;
- rubble (broken bricks, blocks, tiles etc.);
- timber (excluding pallets);
- cement;
- insulation;
- metal;
- dry concrete products (blocks, slabs etc.);
- plaster products (excluding packaging);
- ceramic materials; and
- hazardous waste (remedial wastes, paint cans, oil/lubricants, etc.).

2.4.27 Earthworks would be designed to maximise cut and fill balance in order to prevent material being sent off-site. Where appropriate, topsoil and subsoil would be stored on-site in landscape bunds for reuse during the removal and reinstatement works to return the site to agricultural use in accordance with the **Outline Soils Management Plan** provided in **Volume 2, Chapter 17, Appendix 17C** of the **ES**. Waste generation would be further minimised through the use of modular units for the proposed buildings on-site.

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2.4.28 Any inert and non-hazardous waste material that cannot be reused on-site would be removed by licensed waste carriers and sent for reuse, recycling or recovery, or for disposal at appropriately licenced facilities (these are expected to be inert waste landfill sites). However, works would be carried out in such a way that, as far as is reasonably practicable, the amount of waste to be disposed at landfill is minimised.

2.4.29 It is estimated that 2,643 tonnes (t) of construction waste would be generated, comprised of approximately 1,982t of inert waste, 528t of non-hazardous waste and 132t of hazardous waste). Refer to the **Waste Management Strategy**, provided in **Volume 2, Chapter 8, Appendix 8A** of the **ES**, for further details on the types of wastes likely to be generated, the assumptions used for calculating waste quantities and the proposed measures for waste management.

h) Construction environmental and traffic management

2.4.30 A **Code of Construction Practice (CoCP)** (Doc Ref. 8.11) is included in the DCO application for the Sizewell C Project, which sets out the measures and controls that SZC Co. will require its contractors to adopt during both the construction and the removal and reinstatement of the proposed development. In summary, the **CoCP** sets out the following:

- General construction environmental management arrangements, including details of the environmental management system.
- How construction environmental management arrangements will be implemented, reviewed and monitored.
- Community and stakeholder engagement arrangements that will be implemented during the construction period.
- General measures relating to topics such as training and competence, construction consents, workforce code of conduct, working hours and construction site layout.
- Measures relating to waste management and resource use, land quality, ecology, landscape, cultural heritage, noise and vibration, air quality, water environment, traffic and transport, amenity and recreation, carbon emissions, and emergency arrangements.
- Any site-specific controls to be applied at any of the Sizewell C Project sites.

2.4.31 The management measures and controls included in the **CoCP** have been identified through the EIA process and will minimise impacts on the environment and human receptors, as far as reasonably practicable.

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2.4.32 In addition to the **CoCP**, the arrangements for the management of construction traffic and workforce travel are set out in the **Construction Traffic Management Plan (CTMP)** (Doc Ref. 8.7) and **Construction Workforce Travel Plan (CWTP)** (Doc Ref. 8.8). These documents include a series of measures to reduce the impact of construction vehicle traffic upon the highway network and for the sustainable travel of construction workforce to the Sizewell C Project sites.

2.4.33 The CoCP is secured by a requirement in Schedule 2 of the Draft DCO (Doc Ref. 3.1) and the appointed contractors will be required to undertake the construction works in accordance with the arrangements set out within the **CoCP**. The **Section 106 Heads of Terms** (Doc Ref, 8.04) then secures the **CTMP** and **CWTP**. Any work undertaken by a contractor would be reviewed and approved by relevant SZC Co. personnel prior to the work commencing.

2.4.34 In addition, there may be a need to apply for additional permits, consents or licences prior to and during the construction works (such as land drainage consents, environmental permits or protected species licences, if required). As the programme of works and design are progressed, these permissions will be identified and scheduled in a timely manner to enable determination by the appropriate regulatory body. Any requirements of a granted permit, consent or licence will be provided to contractors undertaking the work to ensure compliance with those requirements.

2.5 Description of operation

2.5.1 This section sets out the anticipated operation of the proposed development.

a) Operation overview

2.5.2 The proposed development has been located to intercept workforce traffic movements from locations to the north and west of the A12 to maximise transportation of the construction workforce by bus to the Sizewell C main development site, reducing car trips on the local highway network. The proposed development would only be required to support the construction of the Sizewell C main development site, which is expected to last 9–12 years.

2.5.3 The proposed development would operate between 05:00 to 01:00 seven days a week.

b) Security and other operational personnel

2.5.4 Security would be provided on-site 24 hours a day, supported by CCTV which would be monitored from the proposed security facilities.

2.5.5 In terms of FTEs, a total of around six security jobs and eight other jobs (likely to include maintenance and service support such as parking attendants)

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would be estimated to be supported at peak between the northern and southern park and ride sites and the freight management facility.

2.5.6 Shift patterns mean that the estimated headcount is likely to be higher for some roles. Staff would work on a shift basis and, assuming two shifts per role for security staff, the total headcount split between the northern park and ride, southern park and ride and the freight management facility would be approximately 20 people.

c) **Vehicle arrivals and departures**

2.5.7 Whilst the proposed development would operate seven days a week, the use would vary throughout the construction of the Sizewell C main development site, according to shift patterns. Typically, there would be fewer shifts on Fridays and weekends. The proposed development would not be operational between 01:00 and 05:00, during which the site will be closed but security staff will remain on-site.

2.5.8 Users would either enter the site via the pedestrian access point to the south-east, or via the main entrance by car before parking in the proposed parking areas. Once on-site, users would walk via pedestrian walkways to reach the buildings on-site, and pass through a secure controlled area for workers to be screened before taking the next available bus to the Sizewell C main development site.

2.5.9 The peak construction year for the Sizewell C Project is anticipated to be in 2028. At this time the construction workforce would be at its highest, and thus use of the proposed development would also be at its peak. Either side of 2028, use would vary according to the location of the construction workforce and demand. The design for the site has been undertaken on the basis of up to 1,250 cars and up to 80 motorcycles parking at the facility.

2.5.10 In addition to the buses travelling to and from the Sizewell C main development site, there would also be arrival and departure vehicle movements associated with the park and ride staff. There would be approximately five operational staff per shift at the proposed development. Assuming there are three shifts per day, there would be in approximately 30 additional vehicular trips to and from the site (not including the movements to/from the site by the Sizewell C main construction workforce).

d) **Frequency of bus services**

2.5.11 The frequency and timing of park and ride buses would depend on the working patterns adopted during construction, and the number of workers to be moved during the shift changeover periods to facilitate construction at the Sizewell C main development site. More frequent services would operate during staff changeover and shift start/end periods. It is anticipated that there

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would be three to nine buses from the proposed development per hour during shift changeover periods, and an hourly service outside of shift changeover periods.

2.5.12 There would be a maximum of 100 daily bus arrivals and 100 daily bus departures from the proposed development to the Sizewell C main development site.

2.5.13 Bus services between the proposed development and the Sizewell C main development site would travel south on the A12 and use the new A12/B1122 roundabout (Yoxford Roundabout – see **Volume 7** of the **ES**) to access the B1122 and the Sizewell link road (once operational – see **Volume 6** of the **ES**) towards the Sizewell C main development site.

e) **Site maintenance**

2.5.14 It is anticipated that prior to operation, responsibility for the maintenance of the site and buildings would be handed over to a facilities management organisation, who would arrange appropriate management and contracts to ensure that the site, including the fabric and structure of the buildings (and other items including fencing, landscaping and lighting), is properly maintained and repaired.

f) **Waste**

2.5.15 Waste would be generated during the operation of the proposed development, including waste arising from maintenance activities, site administration and welfare facilities. These activities could lead to generation of the following types of waste:

- packaging materials for goods entering the site, e.g. paper, card, glass, plastic and metal;
- biodegradable food waste from the welfare facilities;
- hazardous wastes, e.g. some paints, fuel and gas bottles;
- building maintenance waste, e.g. timber, plasterboard, insulation, paint tins and metals;
- green waste from landscape maintenance operations;
- hygiene wastes; and
- municipal waste and litter from the facility users.

2.5.16 The total weekly waste generation expected from the operation of the proposed development is approximately 11m³.

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2.5.17 Bins for waste collection would be located in appropriate areas, both internally and externally, and all waste would be processed and disposed of by a specialist and licenced waste contractor. The collection frequency will be determined by the appointed facilities manager and the collection contractor.

2.5.18 The assumptions used to estimate the required waste storage provision for the amenity and welfare building, security building and security booth are set out within the **Waste Management Strategy** provided in **Volume 2, Chapter 8, Appendix 8A** of the **ES**.

2.6 Removal and reinstatement

2.6.1 Once the need for the proposed development has ceased, the buildings and associated infrastructure, would be removed in accordance with a removal and reinstatement plan, shown in **Figure 2.3**, which would allow for the potential re-use of the modular buildings and materials off-site. When the site has been cleared, the area would be returned to agricultural use, and the A12 reinstated back to its original alignment. Temporary planting within the site would also need to be removed; hedgerows around the roundabout would be removed and re-planted along the original alignment of the A12. The proposed underground diversions of the existing UK Power Networks overhead lines will remain in place but the proposed agricultural track will be removed and the original track alignment alongside the A12 will be reinstated.

2.6.2 Phased removal and reinstatement of the site may be possible as worker numbers decrease, but this would not be determined until the facility is operational. It is expected that removal and reinstatement would take place within the final 24 months of the Sizewell C Project construction programme, as shown in the Indicative Phasing Schedule in the **Implementation Plan** appended to the **Planning Statement** (Doc Ref. 8.4). It is anticipated that construction worker numbers, and construction vehicle movements would be similar during removal and reinstatement to those reported for construction.

2.6.3 It is anticipated that removal and site reinstatement would follow a programme broadly the reverse of construction. Key activities would include, but are not limited to:

- formation of demolition site compound;
- demolition plant mobilisation and ceasing of operational traffic movements and closure of facilities;
- demolition and removal of buildings and structures, and services;
- breaking up of concrete and surfacing;

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- removal of utilities;
- restoration of land; and
- management of waste and other materials.

2.6.4 The anticipated plant and equipment required for the removal and reinstatement works is set out in **Table 2.4**.

Table 2.4: Anticipated plant and equipment for the removal and reinstatement works.

Removal and Reinstatement Works.	Plant/Equipment.
Dismantle and removal of structures.	2 x tracked excavator. 1 x flatbed lorry. 1 x small crane. 1 x breaker mounted on wheeled backhoe.
Landscape reinstatement.	2 x bulldozer. 2 x dump truck. 1 x vibratory roller.

2.6.5 It is estimated that 6,444 tonnes of post-operational waste would be created (comprised of approximately 5,094 tonnes of inert waste, 1,288 tonnes of non-hazardous waste and 63 tonnes of hazardous waste). This would comprise of the same material types as used during construction. Where possible, the recovered materials would be sold directly to the local market for reuse or, alternatively, sent for reuse, recycling or recovery or for disposal at appropriately licenced waste management facilities. Refer to the **Waste Management Strategy** provided in **Volume 2, Chapter 8, Appendix 8A** of the **ES** for further details on the waste types, quantities and management measures during removal and reinstatement.

References

- 2.1 Highways England, Design Manual for Roads and Bridges (updated October 2019) Available at:
<http://www.standardsforhighways.co.uk/ha/standards/dmrb/index.htm>
- 2.2 PINS Advice Note Nine: Rochdale Envelope, July 2018. Available at:
<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2013/05/Advice-note-9.-Rochdale-envelope-web.pdf>