The Sizewell C Project

8.1 10.18 Main Development Site Design and Access Statement - Tracked Changes Version - Part 2 of 3

October 2021

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Book 10 Revision: 1.0
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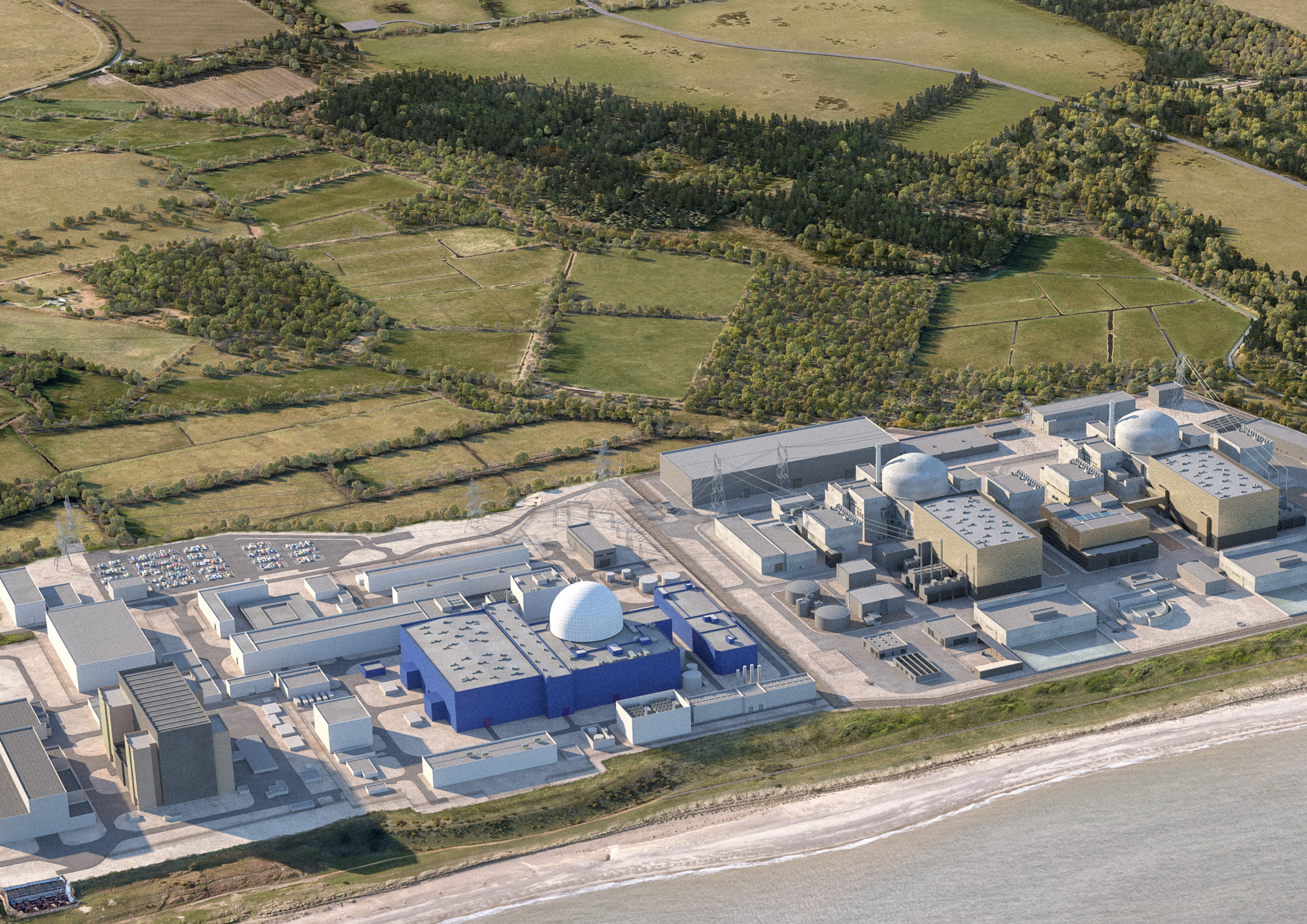


Chapter 7

Building Proposals

7.0 Main Platform

"We suggest establishing a design narrative for Sizewell C that combines functional requirements with an equally strong, simple sculptural form..."

CABE at Design Council (March 2014)

7.1 Introduction

7.1.1 This chapter outlines the design concepts and proposals for the operational platform arrangement and the buildings that would sit within it. The design solutions outlined here have evolved and will continue to evolve as a direct response to the site context, the project requirements and the design principles. **Figure 7.1** provides an illustrative aerial view of the operational platform.

7.1.2 Detail within this chapter is indicative only and is intended to illustrate how the design principles have informed detailed design work to date. Some of these key design principles are highlighted in the red and orange boxes within each of the subsections in this chapter. It also identifies one way that the scheme could continue to be developed in general accordance with the design principles and the main development site parameter plans, as secured by DCO Requirement in **Schedule 2** of the **draft Development Consent Order** (Doc Ref. 3.1(J)).

7.1.3 Building proposals would be treated in families of building typologies, informed by the UK EPR™ GDA requirements and the context within which they would be experienced. Each typology has an overarching concept which is applied to the specific purpose of each structure. This is described within this chapter in terms of function and building concept.

7.1.4 SZC Co. has undertaken a number of internal reviews of the design proposals, including a safety review following the incidents at Fukushima in Japan. Up-to-date learning from the construction of the reference plants at Hinkley Point C, Flamanville in France and Taishan in China have also been taken into account.

7.1.5 There have been some implications for the design of Sizewell C emerging from these reviews. In particular, SZC Co. has assured itself of the robustness of individual building designs. In terms of the physical characteristics of the development, these changes have been modest. For example, there has been no change to the dimensions of the reactor domes. However, since Flamanville was built there have been some changes to the dimensions of structures such as the emergency diesel generators and the nuclear safeguard buildings.

7.1.6 The larger buildings and more permanent structures throughout the development site are described in more detail throughout this chapter, whilst the smaller support buildings and structures are defined in more general terms through a typological approach to their appearance which is informed by the design principles.

7.1.7 Level 1 control documents will either be certified under the DCO at grant or annexed to the **Deed of Obligation** (DoO) (Doc Ref. 10.4). All are secured and legally enforceable. Some Level 1 documents are compliance documents and must be complied with when certain activities are carried out. Other Level 1 documents are strategies or draft plans which set the boundaries for a subsequent Level 2 document which is required to be approved by a body or governance group. The obligations in the DCO and DoO set out the status of each Level 1 document.

7.1.8 This Chapter 7 (in part) is a Level 1 document as are **Chapters 5, 8** and **Table A.1**. Requirement 12 of the **dDCO** (Doc Ref. 3.1(J)) requires that the details of the two sky bridges, intermediate level waste store, interim spent fuel store, main access control building, visitor centre and the relocated facilities administrative buildings to include workshops, civils store and general store must be submitted for approval by ESC must be in general accordance with the relevant design principles in this Chapter 7.

Figure 7.1: (Previous spread) Illustrative aerial view of the Sizewell power station site

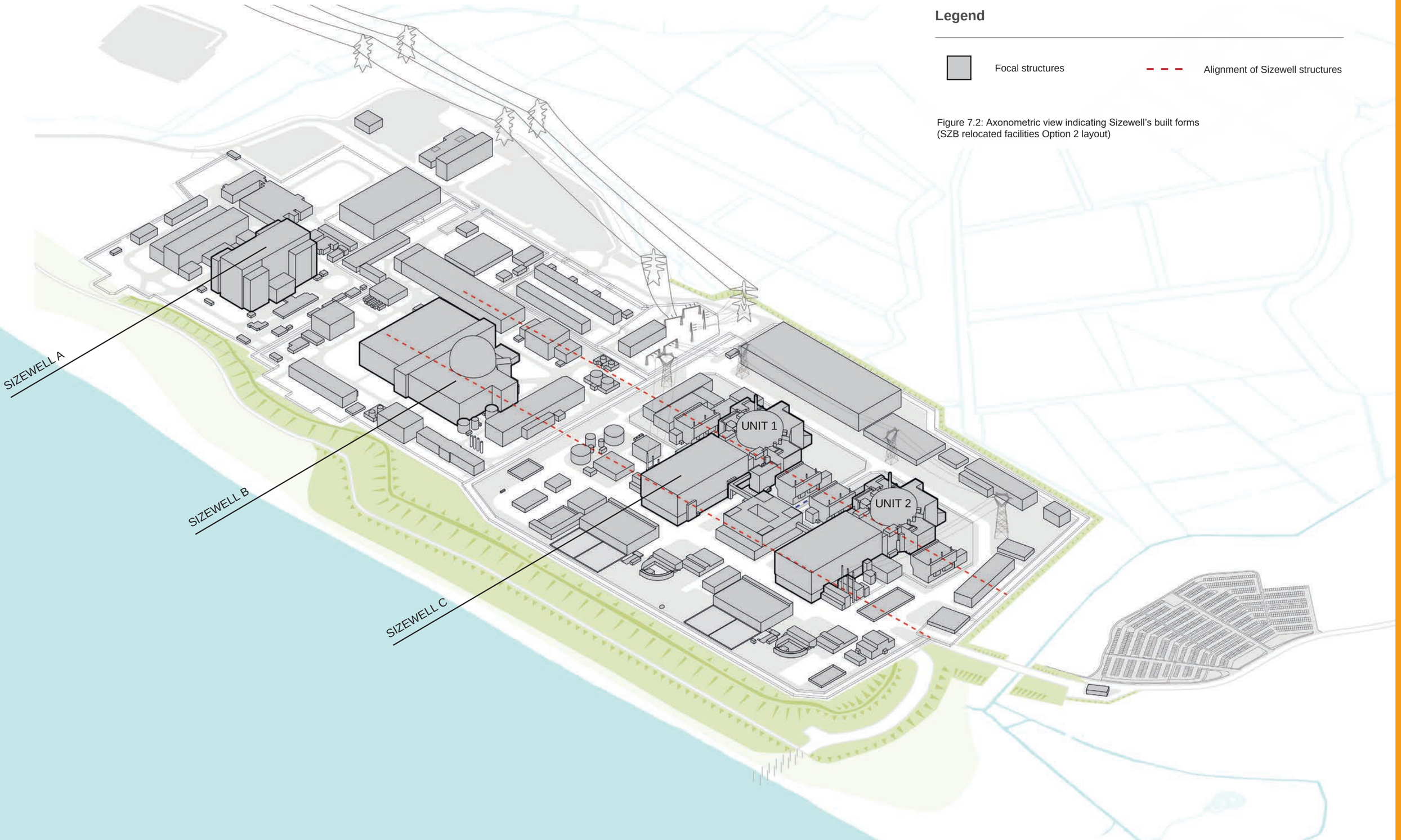
7.2 Site arrangement

7.2.1 The concept for the site arrangement is driven by the aspiration to minimise land take within the protected landscapes of the Suffolk coastline as described in **Chapter 6** of this statement. The site is proposed to be compact with a core of fixed larger structures for each of the two UK EPR™ units, around which all ancillary structures are densely packed in order to reduce land take and minimise the appearance of the overall mass of the development from external views towards the site.

7.2.2 The reactor domes of Sizewell C are therefore physically set back within the proposed operational platform arrangement. As indicated in **Figure 7.2** the two orthogonal forms of the turbine halls will fall within the primary line of sight along the coast in direct alignment with the dome of Sizewell B. These prominent geometric forms of the coastal foreground are deliberately emphasised in contrast to the concrete buildings of the nuclear island, which are visually obscured and recessive in colour and tone.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 48.

The principal Sizewell C structures will be located in close east-west alignment with the Sizewell B dome and continue the existing axis of Sizewell structures to replicate the 'behaviour' of them in views as platonic geometric forms above a vegetated datum.



Legend

Focal structures

Alignment of Sizewell structures

Figure 7.2: Axonometric view indicating Sizewell's built forms
(SZB relocated facilities Option 2 layout)

7.3 Permanent development site

7.3.1 The buildings within the permanent development site are grouped within the following building typologies:

- nuclear island;
- conventional island;
- operational buildings;
- cooling water pumphouse and associated structures;
- ancillary buildings – plant, office / access, storage and fuel & waste management;
- peripheral buildings; and
- other site structures.

7.3.2 **Figure 7.3** identifies the wider development site for Sizewell C, which includes the Sizewell B relocated facilities and additional facilities throughout the wider SZC Co. development site boundary. **Figure 7.4** identifies the operational site buildings within the perimeter security fence and identifies them within their typological groups.

7.3.3 The facilities within the main development site are described throughout the following pages under the section headings listed under the title ‘main development site’ on **Figure 7.4**.

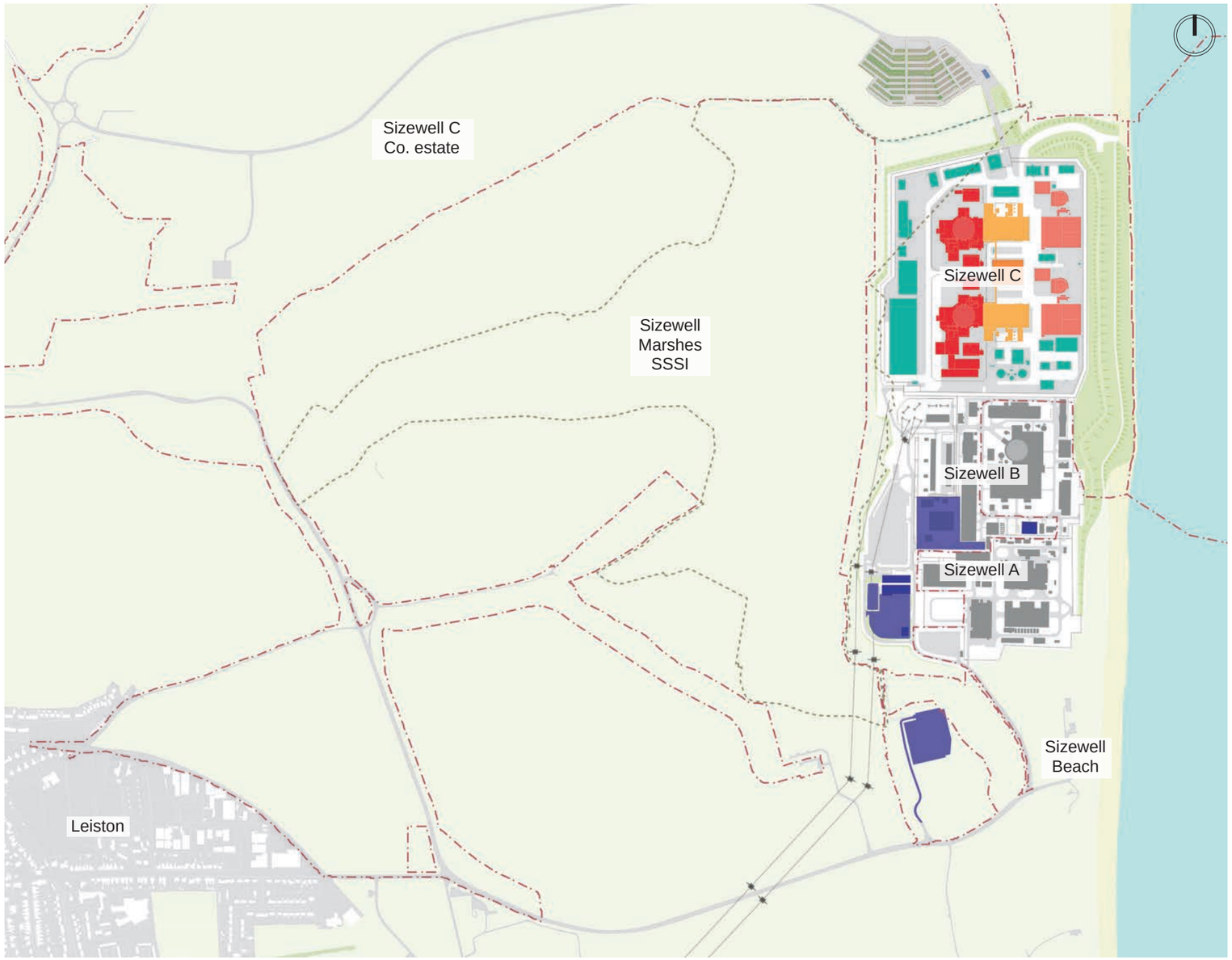


Figure 7.3: Proposed Sizewell C buildings and structures within the SZC Co. operational masterplan (SZB relocated facilities Option 2 layout)

Main development site

7-A Nuclear island (1 - 16)

7-B Conventional island (17 - 23)

7-C Operational service centre (24)

7-D Cooling water pumphouse and associated structures (25-29)

7-E Ancillary buildings:
Office/access (30 - 35)
Plant (36 - 48)
Storage (49 - 53)
Fuel and waste management (54 - 58)

7-F Power infrastructure (59)

7-G Peripheral buildings (60 - 63)

Legend

- Nuclear island
- Conventional island
- Ancillary - plant, office/access, storage, fuel and waste buildings
- Sizewell B relocated facilities
- SSSI boundary
- Cooling water pumphouse and associated structures
- Operational service centre
- Peripheral buildings within the SZC Co. estate
- Sea defences and platform bank
- Suffolk coast and heaths AONB

Figure 7.4: Building typologies within secure perimeter of main development site

7:A Nuclear island

"The UK EPR™ is designed to generate more electricity from less fuel with less downtime than previous generation stations. They combine familiar and proven technology based on recent reactor designs with performance and safety innovations to effectively meet current and future electricity needs."

UK EPR™ Generic Design Assessment

7.4 Nuclear island overview

7.4.1 The proposed power station comprises two near identical UK EPR™ reactor units (unit 1 and unit 2) each with a nuclear island. The nuclear island would consist of a reactor building surrounded by its associated access, safeguard, waste treatment, diesel and fuel buildings together with auxiliary facilities including effluent tanks and discharge weirs.

7.4.2 The nuclear island is subject to the UK EPR™ GDA and must fully comply with the approved safety requirements and is therefore fixed in design terms. The buildings would have specialist structural requirements and the form of each element within the nuclear island would be driven by its function in accordance with these requirements.

7.4.3 The standard design included within the UK EPR™ GDA is based on the reference design for Flamanville 3 power station (refer to **Figure 7.5**) and the designs for Hinkley Point C, currently under construction, and Sizewell C are generally consistent with this design. Replication of the nuclear island maximises learning from previous nuclear experience and minimises the specialist testing required for the safety critical structures. The approved standard design comprises fully detailed drawings and calculations for building structures as well as electrical and mechanical systems.

7.4.4 Supporting facilities surround the reactor and would be arranged to protect it, with each of the buildings separated according to minimum safety distances and below ground gallery connections. A pair of separate emergency diesel generator buildings would be associated with each unit and sit on either side of the reactor formation.

7.4.5 The nuclear island buildings would follow one overarching concept and design typology as a group of specialist nuclear safety buildings within the site. **Figures 7.6** and **7.7**, illustrate their location within the nuclear island.

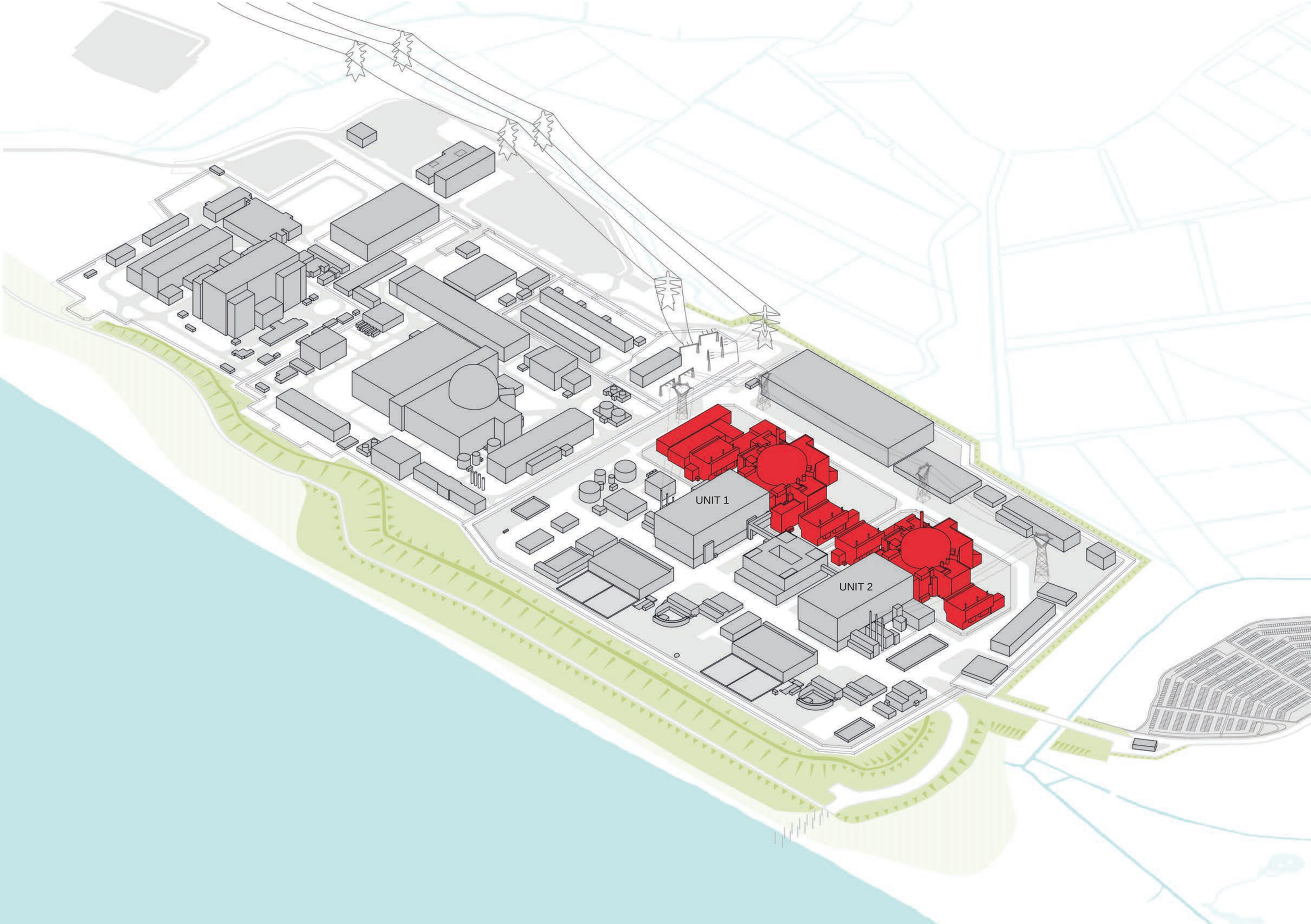
Figure 7.5: UK EPR™ pressurised water reactor nuclear power plant

Figure 7.6: Sizewell C main development site plan

Nuclear island buildings

1. Reactor building
2. Fuel building
3. Boron storage building
4. Fuel building hall
5. Safeguard electrical building
6. Safeguard mechanical building
7. Nuclear auxiliary building
8. Access tower
9. Radioactive waste storage building
10. Radioactive waste process building
11. Radioactive waste treatment building
12. Hot laundry building
13. Hot workshop, hot warehouse, facilities for decontamination
14. Effluent tanks and refuelling water storage tanks
15. Emergency diesel generator building
16. Cooling water discharge weir building

Figure 7.7: Nuclear island operational layout


UNIT 1
UNIT 2

7.5 Nuclear island function

7.5.1 Reactor building (01)

7.5.2 The reactor building would contain the UK EPR™ reactor and the main components of the nuclear steam supply system. **Figure 7.8** illustrates the nuclear island diagrammatically and **Figure 7.9** provides the nuclear island west elevation.

7.5.3 This system would produce heat in a controlled fission reaction contained within a thick-walled steel pressure vessel. This reactor core would house the nuclear fuel; four cooling loops, each consisting of a reactor coolant pump; and a steam generator to boil water in a secondary circuit. The steam produced here would drive the turbine in the adjacent turbine hall for electricity generation. **Figure 7.10** illustrates the UK EPR™ nuclear power plant.

7.5.4 Fuel building (02)

7.5.5 The fuel building would house a water-filled storage pool for new and recently spent fuel, associated fuel handling equipment and ventilation systems

7.5.6 Boron storage and fuel building hall (03, 04)

7.5.7 These buildings would be used for the reception of new fuel and dispatch of flasks containing spent fuel. The boron preparation and storage area would contain boric acid, to be dissolved within the primary circuit water to control the reactivity of the core. It does this by absorbing neutrons, meaning fewer are available to continue the chain reaction of the fission process. Boron is used for 'long-term' control of reactivity, as its effect is spread throughout the core providing better fuel efficiency, whereas control rods are used for rapid adjustment or shutdown.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 62.

The structural concrete of the safety related buildings will be exposed, without additional finishes and will be easily accessible without obstruction for ease of maintenance and inspection, in accordance with operational requirements.

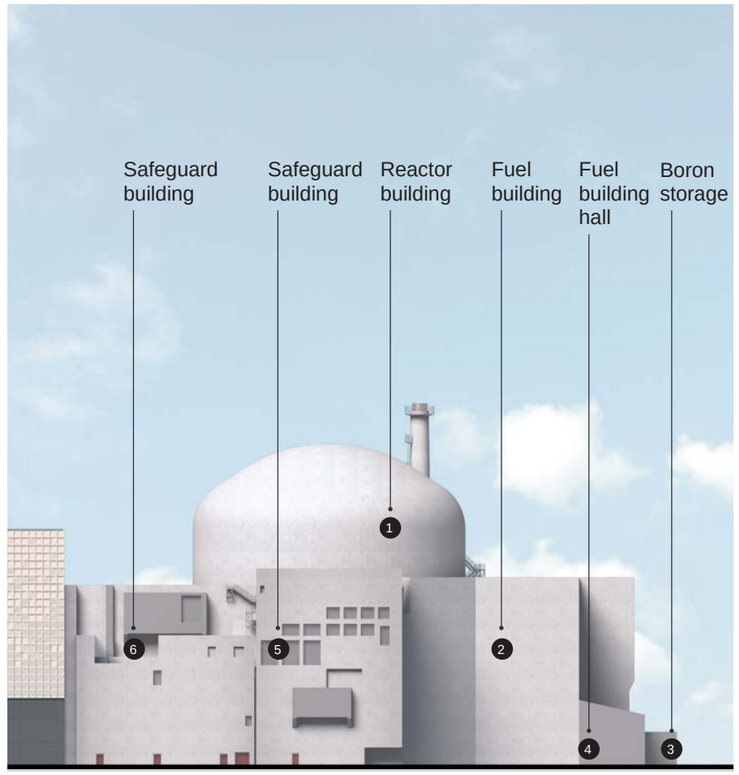


Figure 7.10: Nuclear island unit 2 buildings north elevation, at 1:1250

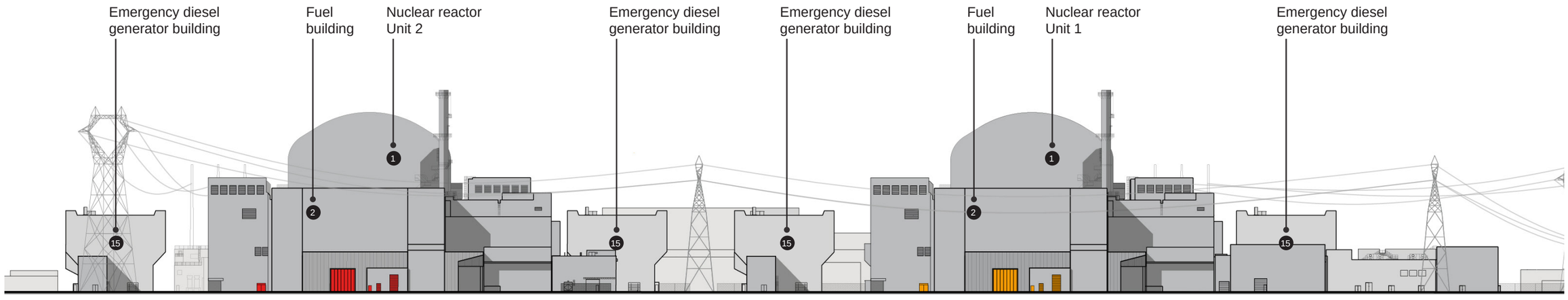


Figure 7.9: Nuclear island west elevation, at 1:1500

Figure 7.8: (Adjacent) Nuclear island overview diagram (SZB relocated facilities Option 2 layout)

7.5.8 Safeguard buildings (05, 06)

7.5.9 The reactor and its supporting systems would be computer controlled to ensure safe and efficient operation. Four independent safety systems would monitor key parameters of the nuclear processes and automatically shut the reactor down in the event of any deviation from normal operation.

7.5.10 The four safeguard buildings would contain the electrical and mechanical systems needed to control and remove residual heat from the reactor and ensure the reactor remains safe in the event of a failure in the primary heat generation system. The buildings would each perform all the necessary safety functions independently to provide sufficient redundancy in the event of multiple failures.

7.5.11 Nuclear auxiliary building (07)

7.5.12 This building would house the nuclear operation support systems and the maintenance areas, including:

- the treatment system for primary effluents;
- the pool-water treatment system;
- the gaseous effluent treatment system;
- part of the steam generator blow-down treatment and cooling system;
- the operational ventilation and chilled water systems of the nuclear auxiliary building; and
- a vent stack for discharge of gaseous effluent associated with the Nuclear Island.

7.5.13 All air exhausts from the radiological controlled areas of the nuclear island would be routed, collected, controlled and monitored within the nuclear auxiliary building prior to release through a vent stack, which would be 70m in height from platform level.

7.5.14 Access tower (08)

7.5.15 This secure building would provide controlled access to the nuclear island from the adjacent conventional island and operational buildings. The access routes are via a high level skybridge and underground service tunnels called galleries.

Figure 7.11: Illustrative overview of the buildings that form the nuclear island for unit 1 and unit 2 of Sizewell C

7.5.16 **Radioactive waste facilities (09, 10, 11)**

7.5.17 These buildings comprise the radioactive waste, storage, process and treatment buildings and they would contain the majority of the processing and storage facilities for radioactive liquid and solid radioactive waste produced on-site, providing a number of important processes that contribute to the environmental and safety performance of Sizewell C.

7.5.18 The unit 1 facilities are designed to treat waste from the two UK EPR™ reactor units. Unit 2 would have only a single waste treatment building where waste would be preconditioned to enable safe transfer to the unit 1 treatment building.

7.5.19 **Hot laundry building, hot workshop, hot warehouse and facilities for decontamination (12, 13)**

7.5.20 These facilities deal with any potential radioactive contamination on-site. The hot laundry building would be the site's internal 'radioactive laundry', dedicated to laundering radiologically contaminated garments. The protective clothing worn by employees when working in contaminated controlled areas would be stored in this building before being sent to an external laundry or be cleaned within the building and reused if in a satisfactory condition.

7.5.21 The hot workshop would be the facility for engineering work on radiologically activated or contaminated plant components such as valves, pipes and pumps. The hot warehouse would be designed to store activated or contaminated tools and components such as the multi-stud tensioner or spare reactor coolant pump motors.

7.5.22 The facilities for decontamination are designed to reduce or remove radioactive contamination from tools, components or wastes. Decontamination of equipment enables reuse of tools and minimises the volume of materials requiring disposal. This facility would create some liquid and solid radioactive waste, which would be sent to the radioactive waste process building of unit 1 for treatment prior to discharge off-site.

7.5.23 **Effluent tanks and refuelling water storage tanks (14)**

7.5.24 Liquid effluent undergoes different treatment depending on its source; primary effluent treatment, spent effluent treatment or turbine hall drainage water treatment. The different types of effluent would be sent to three specific types of tank for temporary storage and checking before discharge.

7.5.25 Treated effluent would be discharged along with cooling water from the units via the outfall pond and underwater cooling water discharge tunnel. Systems and plant would be managed and used in a manner to minimise, so far as reasonably practicable, the environmental impacts of discharges to ensure that all discharges are monitored and recorded to demonstrate that they fall within the permitted limits.

7.5.26 The refuelling water storage tanks include additional supplies of borated water, should there be a need during refuelling and maintenance outages. These tanks are situated close to the effluent tanks, as some facilities may be shared between both structures.

7.5.27 **Emergency diesel generator buildings (15)**

7.5.28 In order to ensure power is always available to the safety critical infrastructure, back-up diesel generators would be located within the nuclear island. Each of these buildings would house two emergency diesel generators and an additional ultimate diesel generator, which would provide back-up power to the reactor unit in the event of simultaneous shutdown of the main emergency diesel generators and loss of off-site power from the national grid high voltage transmission system.

7.5.29 The buildings would be defined by construction needs and the requirement to meet safety related geographical separation criteria to provide redundancy. They would accommodate the easy movement of spare diesel engines and other large components in and out of the buildings for maintenance purposes and have significant ventilation requirements for their internal power generators.

7.5.30 **Cooling water discharge weir buildings (16)**

7.5.31 These buildings would permit the discharge of essential service water and ensure compliance with the UK safety and fire regulations.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 63.

Exposed concrete will have a consistent pale grey finish as far as reasonably practicable. Careful on-site attention will be given to the change in batch of aggregates and setting-out of day joints to ensure a consistent even finish can be achieved, subject to operational requirements.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 64.

The reactor stack will be a recessive colour appropriate to the backdrop of sky that it will be visible against.

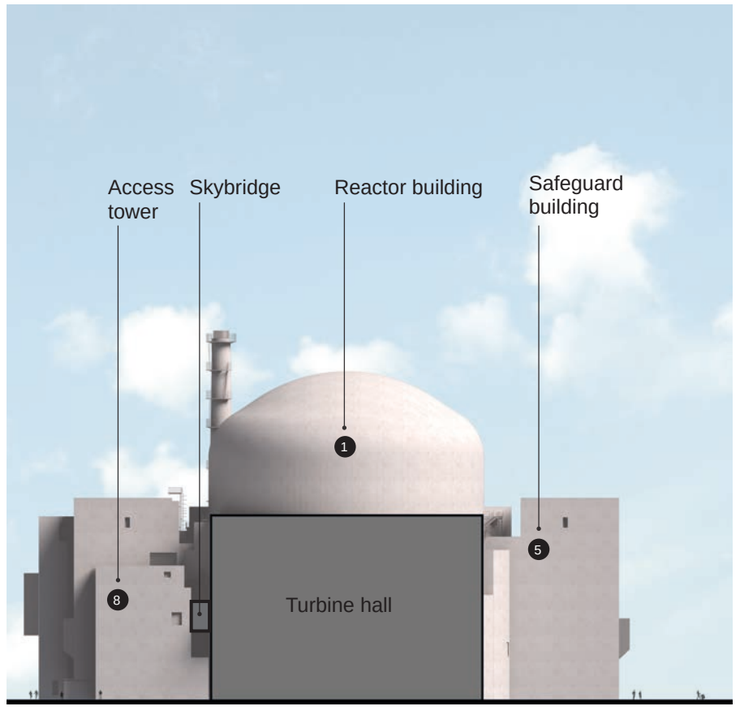


Figure 7.12: Nuclear island unit 2 buildings east elevation, at 1:1250

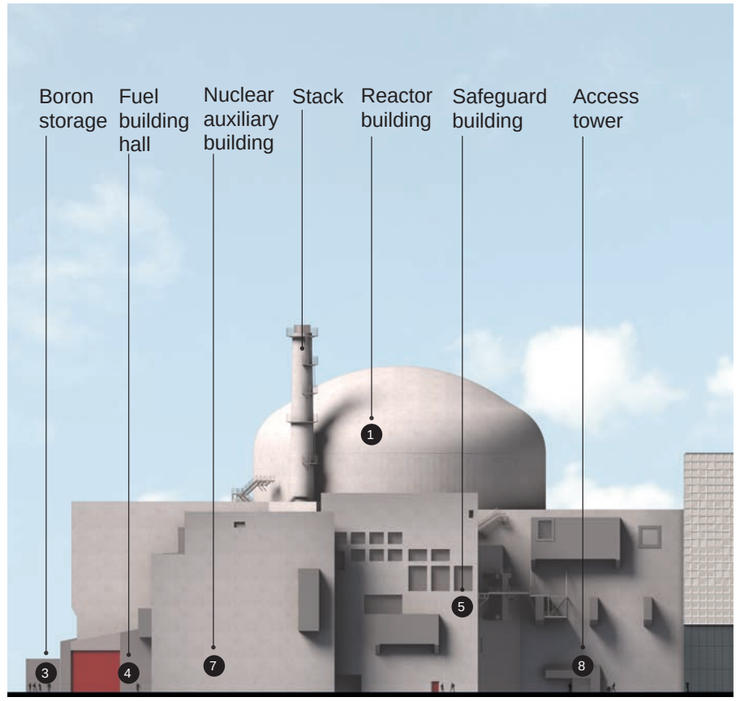


Figure 7.13: Nuclear island unit 2 buildings south elevation, at 1:1250

7.6 Nuclear island access

7.6.1 The nuclear island would be a high security area (HSA) with an additional single security fence line inside the operational platform, refer to **Figure 7.14**. Controlled and secure access to the nuclear island buildings is designed via skybridge links from the operational service centre and turbine halls. Due to the industrial safety requirements of the nuclear island, the UK Building Regulations *'Approved Document Part M - Access to and Use of Buildings'* does not apply.

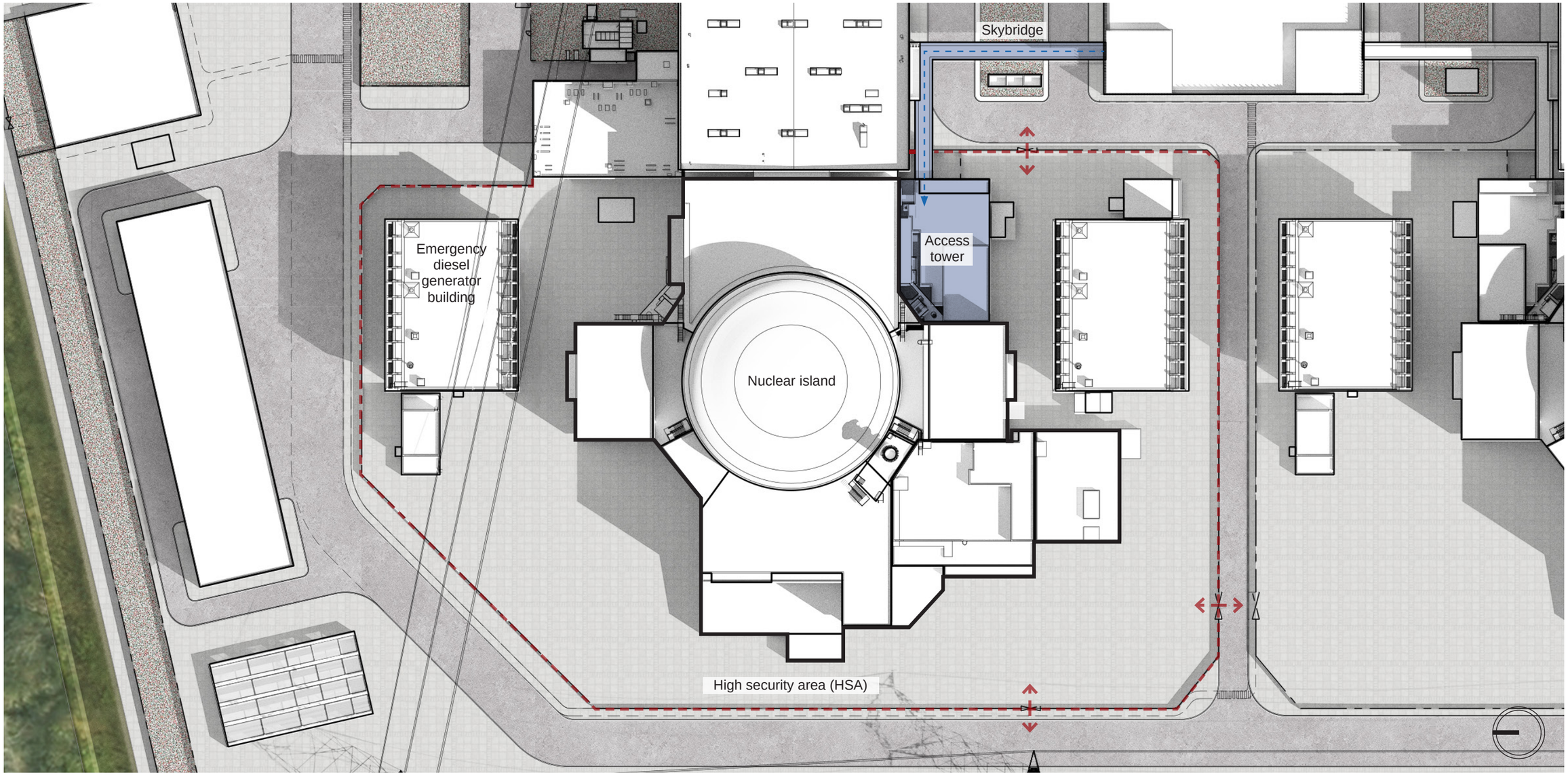


Figure 7.14: Nuclear island in plan indicating access routes to the high security area

7.7 Nuclear island concept

7.7.1 The concept for this building group would arrange elements as a cruciform complex located around the domed cylindrical reactor building at its centre. The entire island is housed within a protective concrete shell structure that will withstand external hazards, such as earthquake and explosion loading, whilst the reactor dome itself provides a ‘double enclosure’ to resist events such as aircraft impact. The dome will be an identifiable, solid structure within the platform and the wider main development site boundary, which will form the backdrop of coastal views towards the Sizewell C development site and be visible above the tree line from inland viewpoints.

7.7.2 The external geometry and profiles of individual buildings within the nuclear island would be simplified as far as reasonably practicable to emphasise the legibility of their forms and to minimise the visual impact of the buildings upon the skyline in views from the surrounding landscape. These buildings would form a recessive background profile to views from inland, beyond existing foreground vegetation and from coastal views beyond the proposed focal structures of the turbine halls and operational service centre.

7.7.3 The nuclear island buildings would be constructed from reinforced concrete, which would be of the highest structural grade. Its surface must always be accessible and available for regular visual inspection or maintenance. The concrete for these structures would be cast in-situ and there may be minor changes in colour and surface finish which could vary due to local aggregates within the mix, climatic conditions and other batch variations. However, the colour range is to be kept within reasonable extents, as far as reasonably practicable, as indicated and illustrated in **Figure 7.17**.

7.7.4 Openings and entrances would feature consistent louvered metal panels and doors. Anodised aluminium is preferable in terms of materiality given its corrosion resistant properties and suitability to a marine environment, however steel may be required where specialist performance requirements need to be met, for example fire or blast resistance. Accent colours could potentially be used to aid operational way finding within the site and provide visual interest to the otherwise recessive concrete structures. Unit 1 and unit 2 would comprise of identical structures therefore a different accent colour could be used to identify one structure from another, refer to **Figures 7.15** and **7.16**.

7.7.5 The reactor stack would be exposed galvanized steel or paint finished to a pale grey in order to be recessive in its appearance and harmonise with changing sky conditions. A variety of stack colour options have been presented and discussed with the local authorities. The stack has no visible plume and must be fully accessible for inspection and repair.

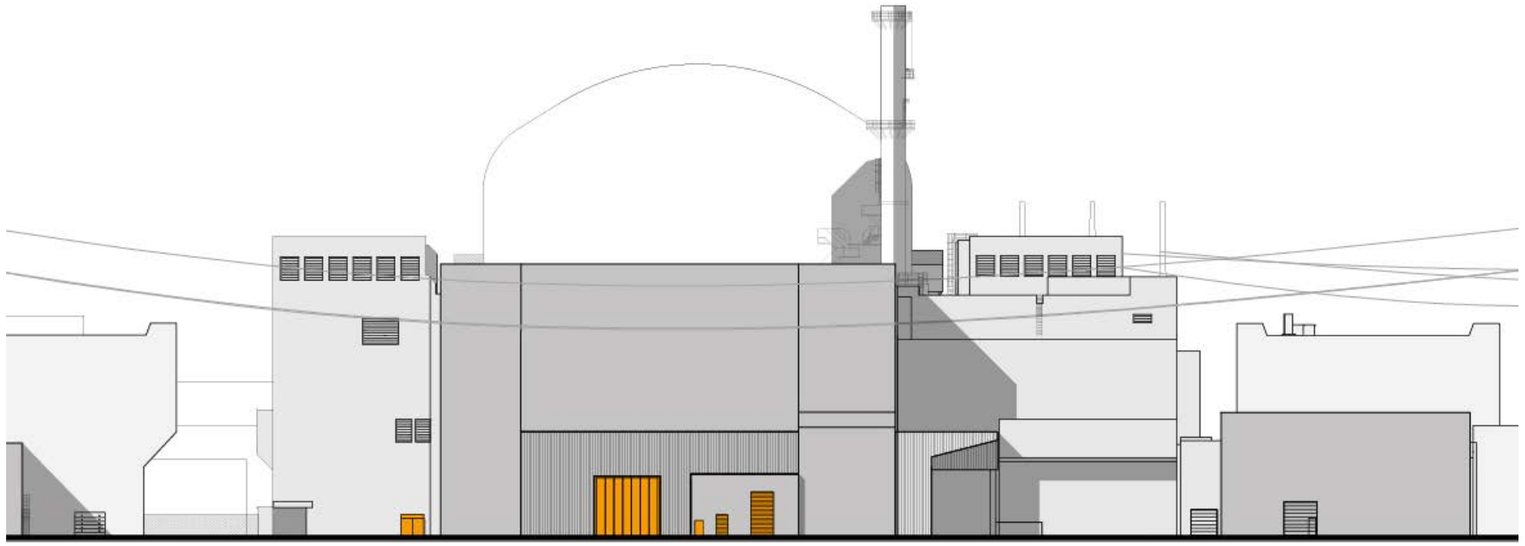


Figure 7.15: Nuclear island reactor building unit 1 wayfinding solution

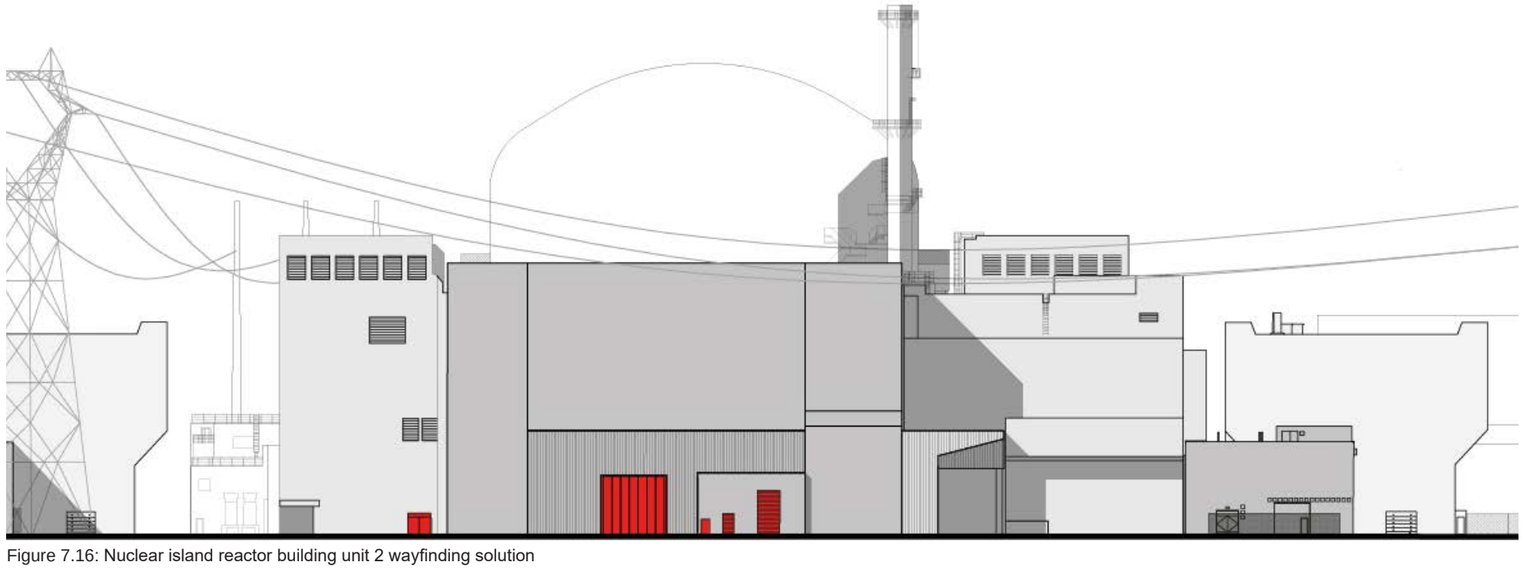


Figure 7.16: Nuclear island reactor building unit 2 wayfinding solution

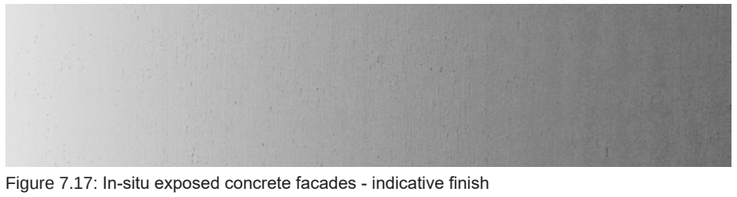


Figure 7.17: In-situ exposed concrete facades - indicative finish

Figure 7.18: Accent colours which could be applied to each UK EPR ™ unit

7:B Conventional island

“Design decisions for Sizewell C - the siting and scale of buildings ...and their treatment - have a collective visual impact, and therefore should be made based on their ‘composition’ within the landscape. The size, shape, and orientation of facade panels will greatly inform how the turbine halls are perceived in terms of their scale and relationship with the landscape.”

CABE at Design Council (November 2019)

7.8 Conventional island overview

7.8.1 The conventional island consists of a group of buildings which would translate the heat energy generated within the reactor building into electricity to be exported to the national grid via overhead transmission lines. This group of buildings includes the turbine halls, conventional island electrical building and the power transmission platform, which would comprise of the main transformer, the gas insulated switchgear building, the auxiliary transformer and the unit transformer. The conventional island would be positioned between the nuclear island and cooling water pumphouse and associated buildings.

7.8.2 The most prominent structures within the conventional island are the turbine halls, which will perform the critical power generation process on site. The majority of the conventional island buildings annexed to the turbine halls would be relatively small in scale and reflect the industrial nature of their function. These buildings are largely driven by the UK EPR™ generic design technical requirements and would be fixed in their location on-site by critical adjacencies to the nuclear island.

7.8.3 The turbine halls, although fixed in their form and function are flexible in their cladding design and the main concept for the site would be expressed through their pure geometric forms. The simple panelised façades of the buildings would become a canvas for a dynamic surface treatment, which would be perceived differently depending on the time of day, lighting and sky conditions that they are exposed to.

7.8.4 The operational service centre, described within **Chapter 7:C** of this statement, will be located centrally between the two turbine halls (See **Figures 7.19, 7.20** and **7.21**) and will be physically linked to the turbine halls via skybridges and underground galleries. Unlike the nuclear island, the layout of the buildings in the two conventional islands would be mirrored or ‘handed’.

7.8.5 This symmetrical composition of turbine halls flanking the central workforce building, is reminiscent of classical architectural compositions particularly as the buildings sit on a solid podium and are linked on either side by the power station’s skybridges. The combined form of the two turbine hall buildings together with the operational service centre will be an identifiable landmark of simple platonic structures viewed alongside the existing structures of Sizewell A and Sizewell B power stations.

7.8.6 The composition of built forms and the panelised facade treatment will work in combination to reduce the apparent scale of the buildings, whilst also symbolically celebrating the buildings as the key power generating structures at Sizewell C.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 54.

The arrangement of the turbine halls on the north-south axis of the site will be spaced symmetrically within the immediate foreground of the Nuclear Island buildings to provide clear separation of the volumes.

Figure 7.19: Sizewell C overview

Legend

- Nuclear island
- Conventional island
- Ancillary - plant, office/access, storage, fuel and waste buildings
- Sizewell B relocated facilities
- Cooling water pumphouse and associated structures
- Operational service centre
- Peripheral buildings within the SZC Co. estate
- Sea defences and platform bank

Conventional island buildings

17 Turbine hall

18 Skybridge

19 Conventional island electrical building

20 Main transformer platform

21 Unit transformer platform

22 Gas insulated switch gear building

23 Auxiliary transformer platform

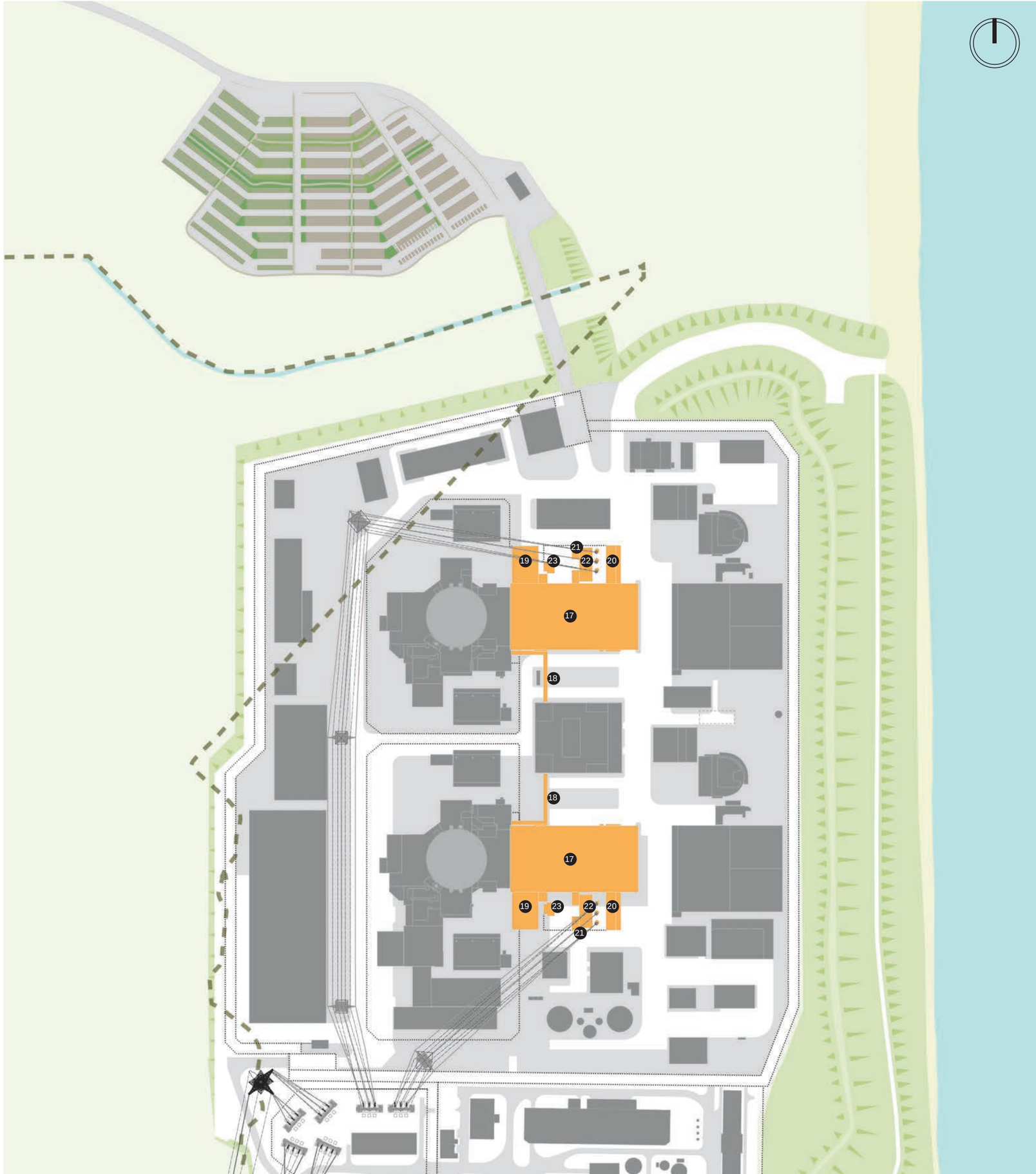
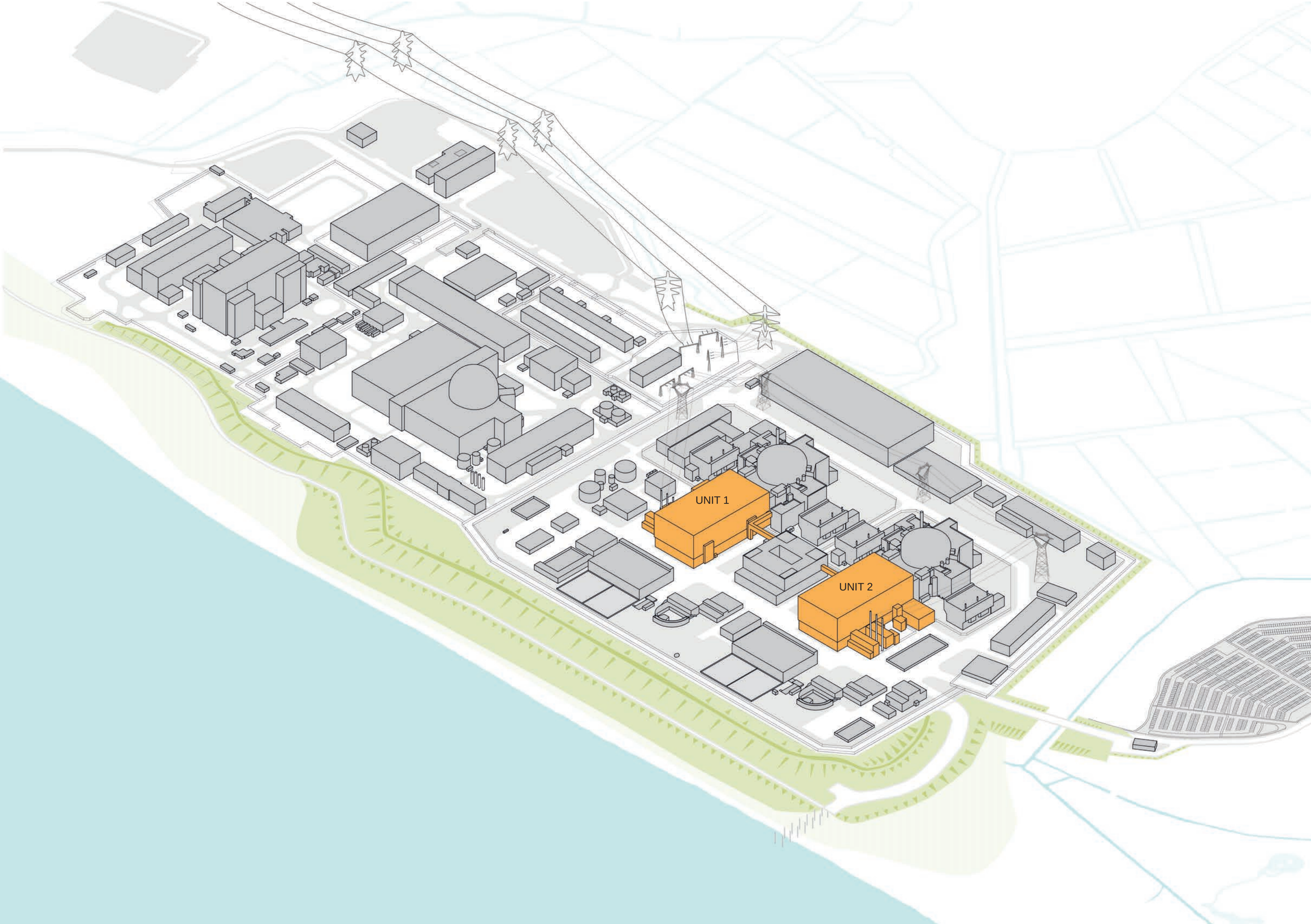


Figure 7.20: Conventional island operational layout


UNIT 1
UNIT 2

7.9 Conventional island function

7.9.1 Turbine halls (17)

7.9.2 Each turbine hall would contain the turbine and generator set (turbo-generator), which produces electricity from steam delivered by the nuclear steam supply system within the nuclear island. The steam driving the turbine is condensed during this process and the resulting condensate is returned to the steam generators via feed heaters and high-pressure pumps within this building. Sea water is circulated via the main condenser to cool steam within the secondary system, this can then be returned to sea via the outfall pond building, described under the cooling water pumphouse and associated buildings, in **Chapter 7:D** of this statement.

7.9.3 The turbine hall would be approximately nine stories high, the turbo-generator and associated plant would be located at lower levels, with support equipment and pipeline systems on intermediate floors around the periphery of the building. The upper section above the turbine floor would contain heavy handling equipment including overhead cranes and two gantries for installation as well as space for maintenance and replacement of this equipment.

7.9.4 The detailed location of each turbine hall in relation to the nuclear island is set by requirements for routing pipework and inter-unit tunnels as well as the need to leave enough space for the air intakes of the nuclear island. There is a specific risk from the projection of a turbine missile that could emanate from the turbine units if a turbine blade were to fail. SZC Co. have carried out rigorous safety assessments in order to address and mitigate this risk.

7.9.5 The conventional island buildings would be carefully arranged to ensure sufficient maintenance and manoeuvring space internally for the large-scale equipment that they would house within their fabric.

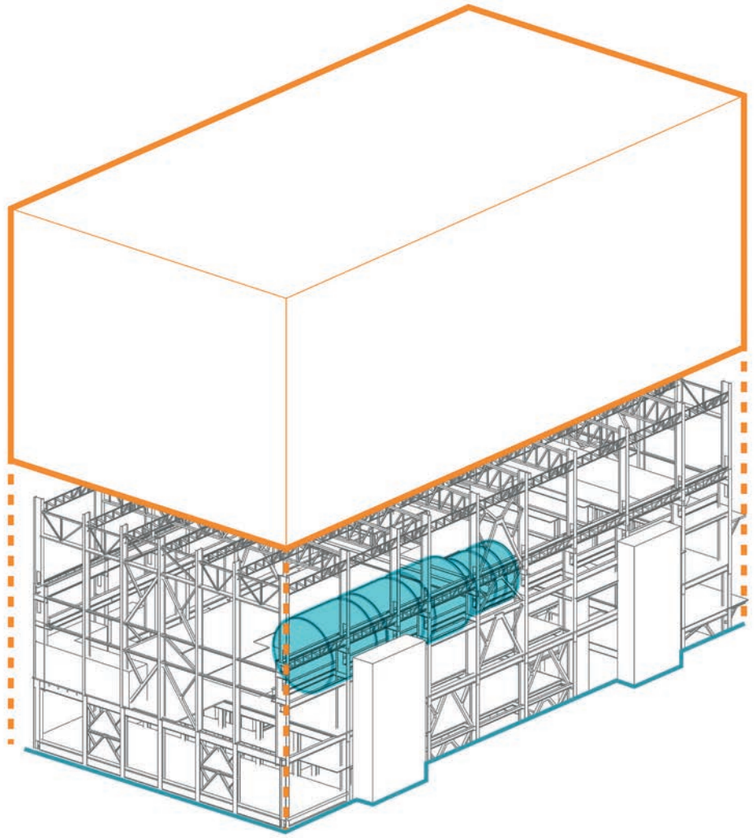


Figure 7.22: Exploded axonometric to indicate the simplified envelope of the turbine hall

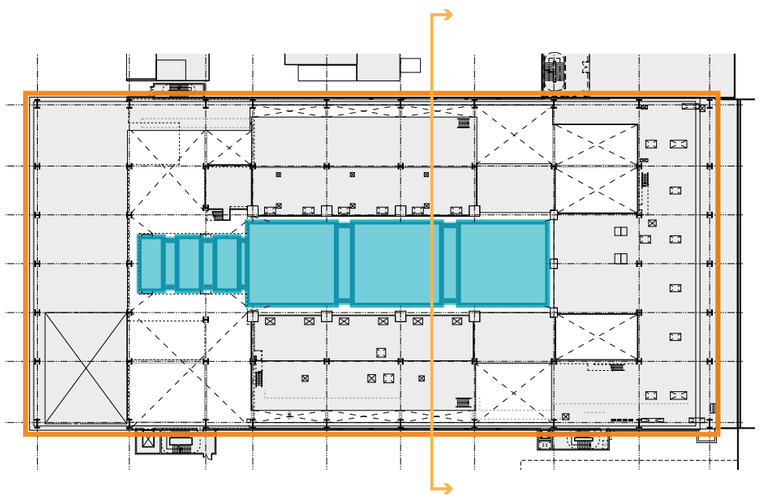


Figure 7.23: Turbine hall diagrammatic arrangement in plan

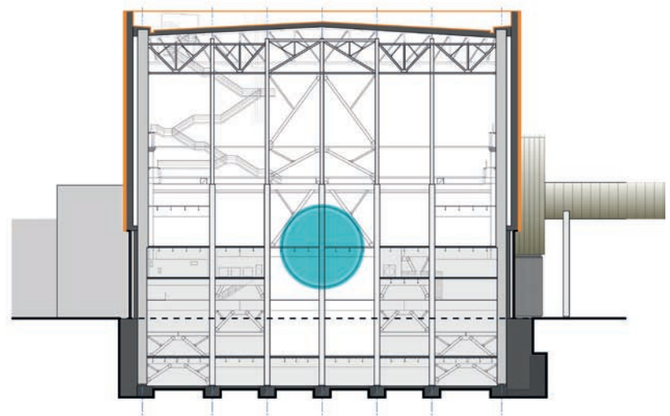


Figure 7.24: Turbine hall diagrammatic connections in section

Legend

- Turbo generator
- Industrial plant
- External simplified skin clad in anodised aluminium

Figure 7.21: (Adjacent) Conventional island overview diagram (SZB relocated facilities Option 2 layout)

7.9.6 **Skybridges (18)**

7.9.7 Skybridges permit direct high-level access to the turbine hall floor from the nuclear island and the operational service centre. They will be secured by access control doors at each entrance and within the access control tower adjacent to each turbine hall.

7.9.8 **Conventional island electrical building (19)**

7.9.9 This building would house electrical distribution panels, which would provide the permanent power supplies to both the nuclear island and the conventional island systems, together with the instrumentation and control equipment which would monitor and manage these systems. The building is considered as an industrial building with dedicated workforce facilities, it therefore requires additional air conditioning, ventilation and smoke extraction.

7.9.10 **Power transmission platform (20, 21, 22, 23)**

7.9.11 The power transmission platform lies adjacent the turbine hall and contains a group of structures and electrical equipment to connect the power station to the national grid substation. The platform houses the following electrical plant:

- Main transformer platform (20);
- Unit transformer platform (21);
- Gas insulated switchgear building (22); and
- Auxiliary transformer platform (23).

7.9.12 Electricity generated within the turbine hall is stepped up to 400kV by the main transformer before being exported via overhead lines to the National Grid substation.

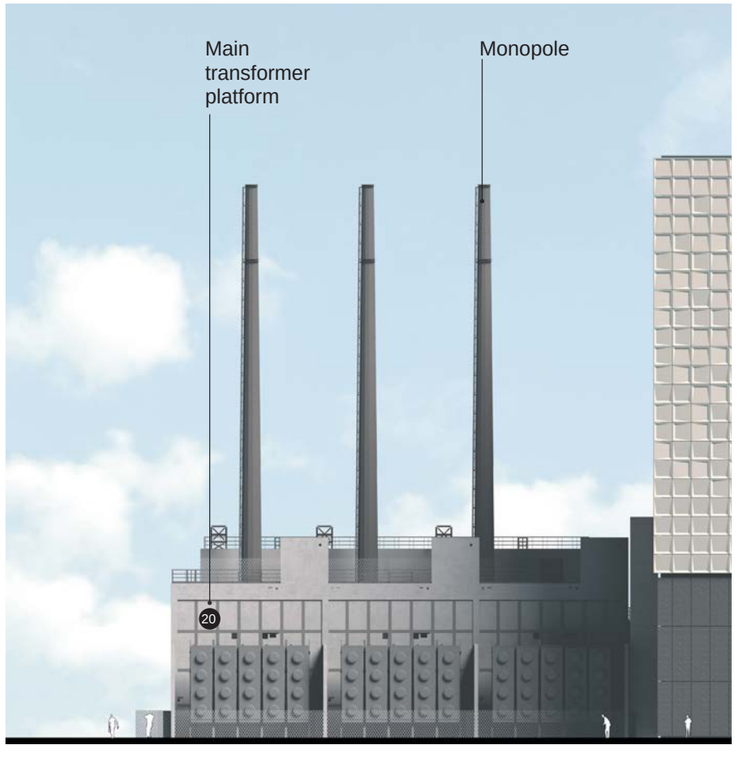


Figure 7.25: Main transformer platform unit 1 east elevation, at 1:500

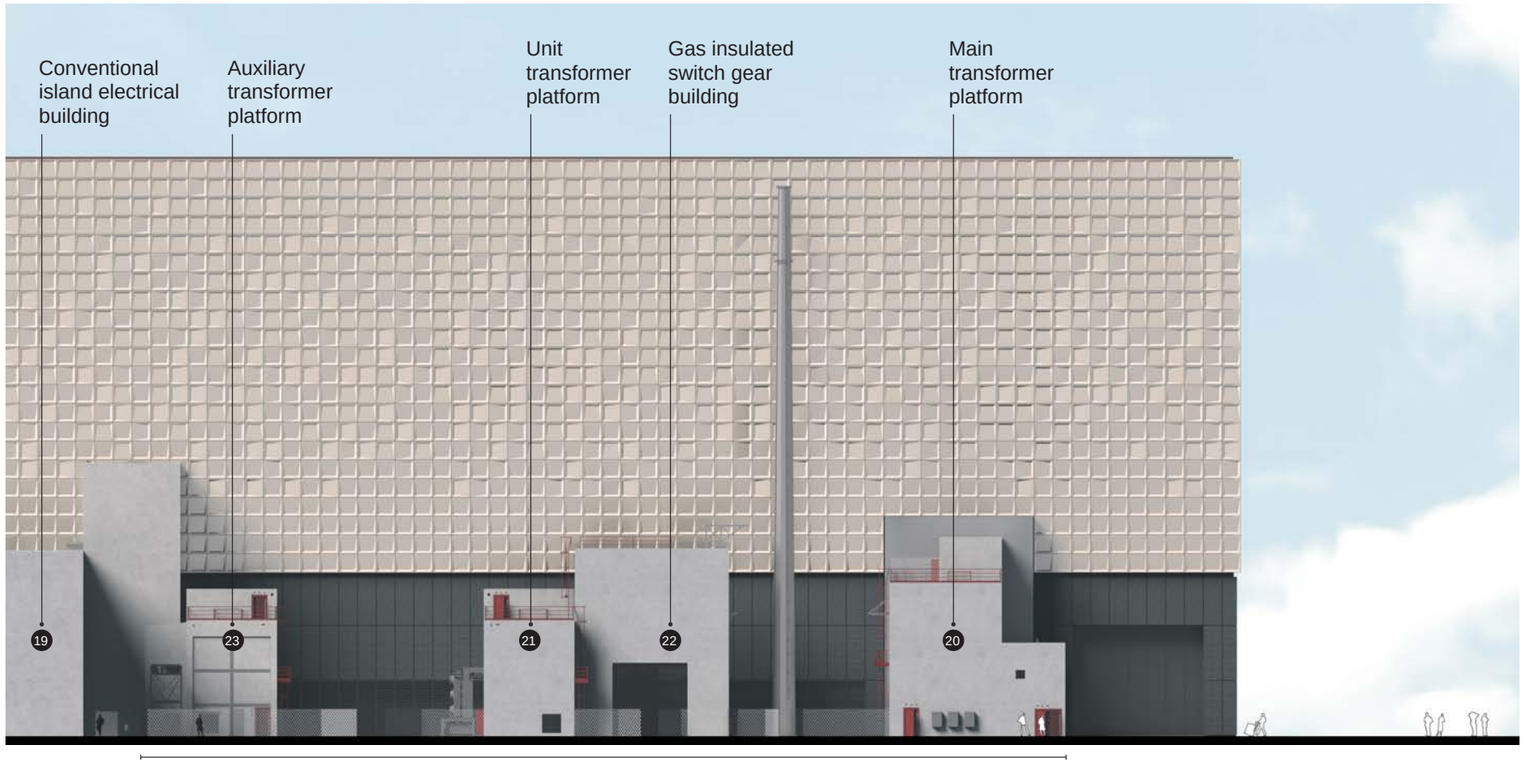


Figure 7.26: Conventional island unit 1 structures south elevation, at 1:500

7.10 Conventional island access

7.10.1 Access to the conventional island is strictly controlled with managed entrances within the skybridges, underground galleries and additional ground level security measures. The turbine halls have four access cores towards the building's perimeter, there are also dedicated 'safe' horizontal routes within the building that are kept free from obstructions for the safety of personnel and visitors. The turbine hall is organised to enable storage of main turbine components during maintenance outages, and to allow level access for equipment at lower levels through ground level openings. Two horizontally sliding doors are required to permit access for vehicles into the halls and must also be able to accommodate the largest replacement parts that would be required.

7.10.2 Due to the industrial safety requirements, the UK Building Regulations *'Approved Document Part M - Access to and use of Buildings'* does not apply to the turbine halls or other remaining conventional island structures identified within this chapter.

Legend

- Secure fence line for secure area
- Skybridge access to turbine hall floor
- Access point for maintenance and escape
- Vehicle access
- Stair core for escape

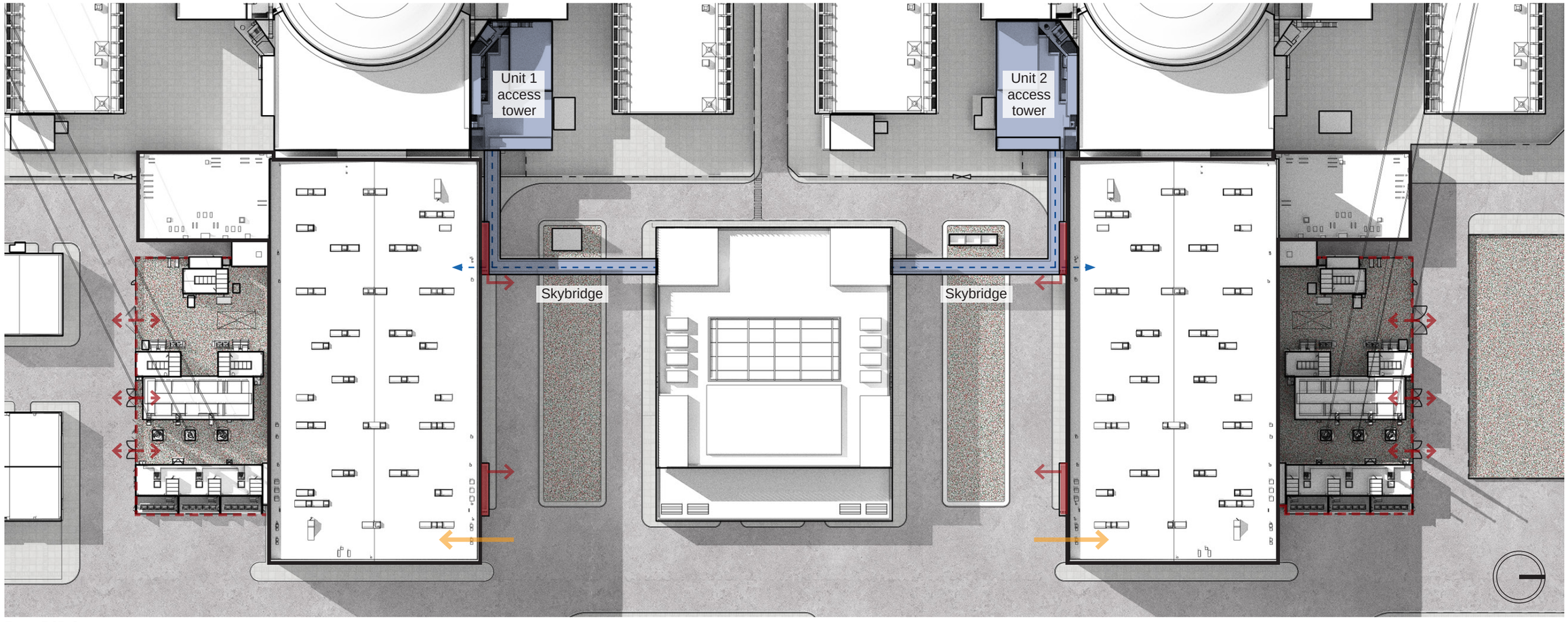


Figure 7.27: Conventional island structures plan indicating access routes

7.11 Conventional island concept

7.11.1 One of the driving concepts for Sizewell C is expressed through the bold simplified geometry of the turbine halls in combination with the operational service centre and the linking skybridge elements which together will comprise a formal set-piece.

7.11.2 This group of 'focal' structures would be constructed as pure orthogonal elements, which relate to the existing Sizewell A and B platonic built forms. Parallels with Sizewell A and B power stations can also be drawn in terms of the use of detailing to manipulate the perceived scale of certain elements, as described in **Chapter 6** of this statement. The structures will also be treated with a consistent material approach which would have a high-quality durable finish and behave sensitively to complement the surrounding landscape of the area.

7.11.3 In order to achieve the required high-quality finish within a marine environment, anodised aluminium has been selected for the external cladding panels. This lightweight, easily formed material is corrosion resistant and will retain its finish. The electrochemical process of oxidising the surface of the metal creates an integral layer, which is chemically stable, tough, brittle and acts as an electrical insulator. It is possible to colour the surface of the aluminium by combining metal salts within the anodic skin of the panels, the colour is created by light absorption and reflection from the surface as an optical effect. The selected colour will be from a fade free range.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 55.

The turbine halls and operational service centre will comprise a formal set-piece with a consistent material finish. The silhouette of these structures would be identifiable as a clean simple profile from coastal views.

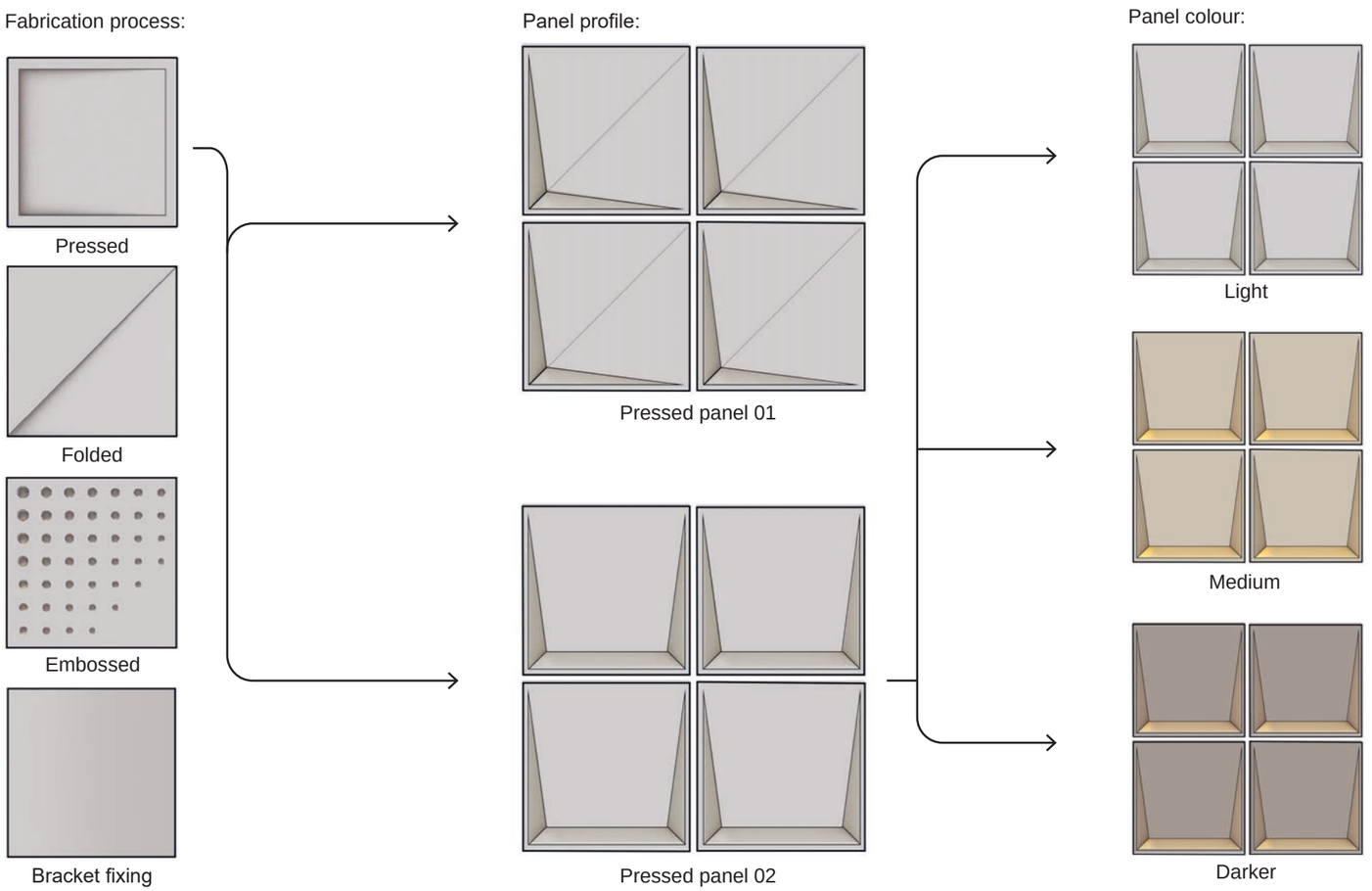


Figure 7.28: Cladding panel profile development

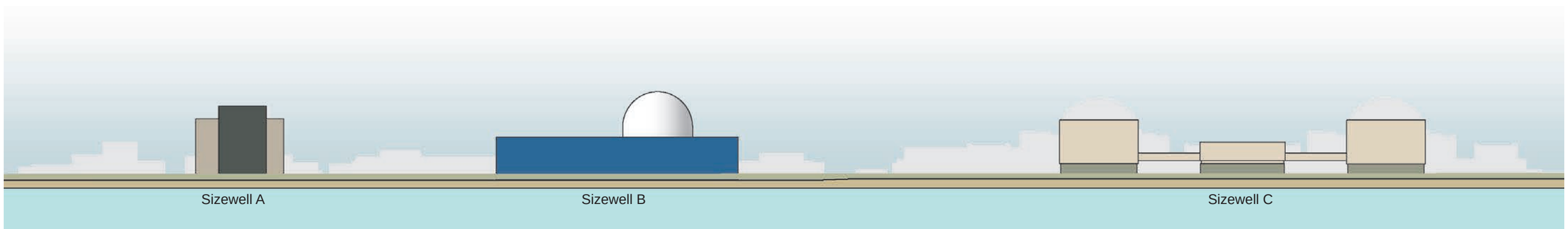


Figure 7.29: Coastal elevation illustrating sequence of contrasting Sizewell A, Sizewell B and Sizewell C forms

7.11.4 The panelised facade treatment of the turbine halls would perform as the external expression of the power station. It is designed to provide a sensitive response to the surrounding landscape by using a regular cladding module in different orientations across the facade to create graduated variations in relief, tone, colour and texture. This system will also deliver a maintainable facade with a layered skin to allow for panel replacement and will meet rigorous acoustic and safety requirements in accordance with the UK EPR™ generic design technical requirements. A dark recessed shadow gap will be visible between panels to define the framework and modularity of the facade.

7.11.5 The cladding panels would be applied to a 1.5m facade grid and would be profiled to accentuate variation across the turbine hall facades. The profiles explored have included etched, embossed, folded and pressed surfaces, several of the design options explored are illustrated within **Figure 7.28**, each of the profiles offers the opportunity to rotate the panels through four alternative orientations. The pressed profile has resulted the greatest variation in surface colour and tone, providing the greatest visual effect when orientated in different directions. Currently two different pressed panel variants are being considered, one of these is pressed in on the corner and the other is pressed into the side as illustrated by **Figure 7.28** and **Figures 7.30 - 7.35.**

7.11.6 The resulting variation across the surface of the turbine halls could be applied randomly or modified to create gradients and patterning to the façade. Each individual panel would become like a pixel forming part of a broader picture in conjunction with the context the buildings sit within. This has been explored to create a subtle gradation from the base of the building towards the top edge where panels will be angled up in greater numbers to reflect the sky and dissipate into the light beyond. Similarly, towards the bottom of the façade grid panels are angled down towards the ground in greater numbers in order to reflect the ground conditions. Centrally located panels are randomly placed with the largest numbers orientated east and west. The overall effect is a gradation from darker colour tones at the base to lighter at the top creating the appearance of a dynamic skin which is responsive to its surroundings.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 56.

The turbine halls cladding (material above the base plinth) will seek to provide a responsive surface treatment which changes in colour and tone, subject to surrounding lighting and climatic conditions and will be made of a material and panel profile/s agreed with East Suffolk Council. The colour palette, material and panel profile will be discussed and agreed with East Suffolk Council in consultation with the AONB Partnership and the National Trust as part of pre submission discussion/ design review and align with the colour information and study outcomes recorded in the Design and Access Statement Section 7:11 and within a range of light to darker bronze. The information will include details of the manufacturer's maintenance specification for external facing cladding.

Figure 7.30: Geometric form visible beyond the site: Option 01

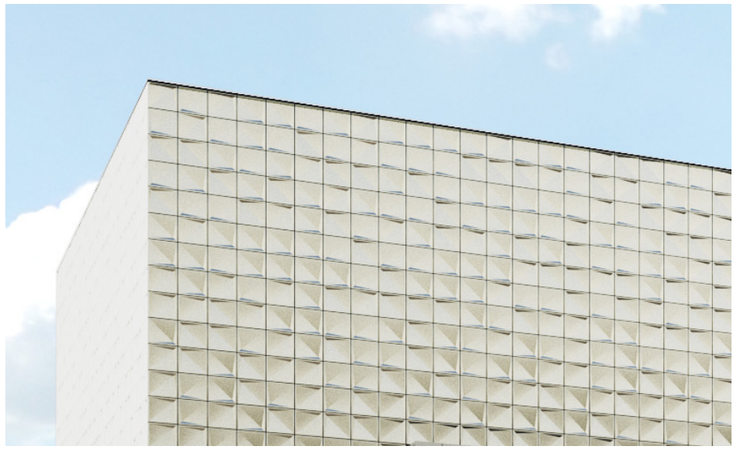


Figure 7.31: Cladding modules at mid-distance views: Option 01

Figure 7.32: Panel detail perceptible at close range: Option 01

Figure 7.33: Geometric form visible beyond the site: Option 02

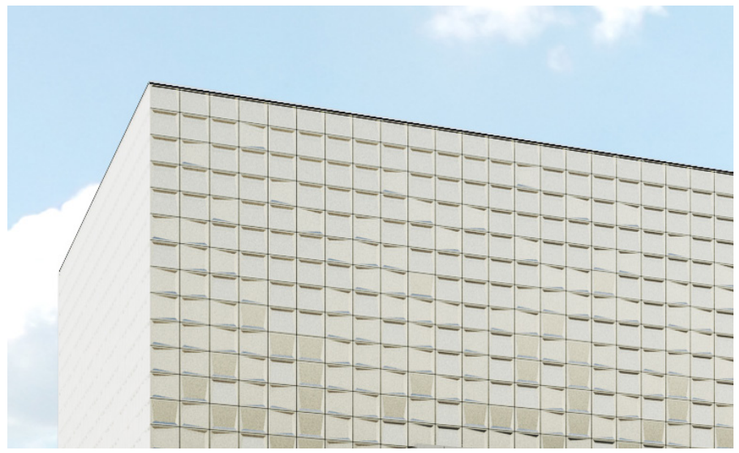


Figure 7.34: Cladding modules at mid-distance views: Option 02

Figure 7.35: Panel detail perceptible at close range: Option 02

7.11.7 The colour finish variants for the turbine hall cladding panels have been reviewed within the Sizewell context to better understand their performance under various site-specific lighting conditions. The proposed finish would exhibit a range of colours across the façade at any one time due to the behaviour of the materials surface finish, reflections and shadows. Climatic conditions will also affect the appearance of the buildings' skin, rendering it a static yet variable façade changing throughout the seasons and at different times of day.

7.11.8 The individual profiled cladding modules behave visually as a granular material which would have a gradually changing appearance on approach to the buildings and when viewed from differing viewing positions. As discussed in **Chapter 6.15** , this effect is visible within the existing facades of Sizewell B, and also the natural grasses and shingles of the surrounding landscapes. When viewed in mass from afar, the external appearance is viewed as a profiled form with high contrast to the surrounding context. At mid-distance views, colour variation and panel profiles become apparent; and at close proximity finer details, shadow and reflection add further interest.

7.11.9 The elevated skybridges which connect the turbine halls with the operational service centre conceptually form the elements which will tie together the formal set-piece of the three focal structures. As a result, these will be clad using panels formed of the same anodised aluminium colour finish and are set-out on a similar 1.5m vertical planning grid. The eastern facade provides a continuous solid exterior to the coast to prevent light spill whilst some glazing is provided on the western façades to allow natural light to enter the walkway.

OVERARCHING DESIGN PRINCIPLE 21.

Design will utilise techniques to reduce the perceived scale of buildings from a distance by manipulating the size and arrangement of visible components and façade details, subject to operational requirements.

OVERARCHING DESIGN PRINCIPLE 24.

Subject to project requirements, visibility from public viewpoints and good masterplanning, where possible, the built forms of Sizewell C will generally be treated with an external colour palette that is responsive to and will aim to form an integrated part of the natural landscape they sit within.

Figure 7.36: The range of scaled panels reviewed within the Sizewell context for turbine hall facades

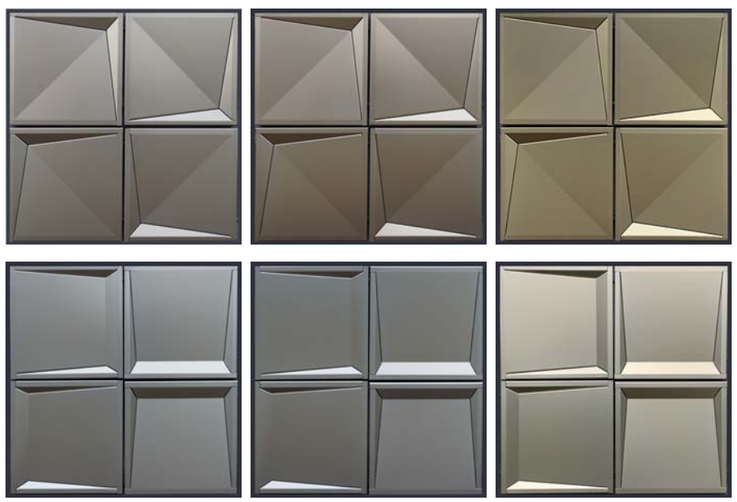
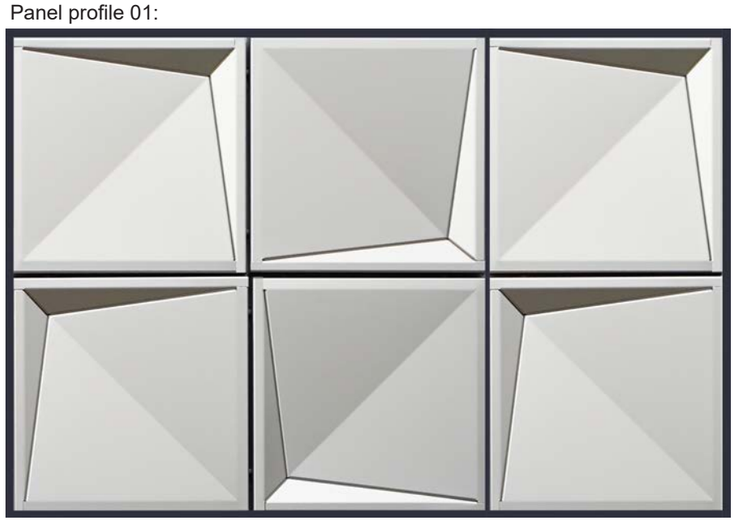


Figure 7.37: Differing light conditions upon light bronze panels

Panel profile 01:



Panel profile 02:

Figure 7.38: Scale mock-ups to illustrate profile alterations to turbine hall panels, light bronze anodised aluminium finish viewed from a low angle in natural light

Figure 7.39: Illustrative view south towards the Sizewell C site from National Trust Dunwich Coastguard Cottages car park (refer to Figure 13.10.67 of **Volume 2, Chapter 13** of the **ES**, Doc. Ref. 6.3)

Figure 7.40: Illustrative view south towards the Sizewell C site from the Suffolk Coast Path adjacent Minsmere Sluice (refer to Figure 13.10.57 of **Volume 2, Chapter 13** of the **ES**, Doc. Ref. 6.3)

Figure 7.41: Illustrative view north towards the Sizewell C site from the Suffolk Coast Path and Sandlings Walk east of Hill Wood (refer to Figure 13.10.41 of **Volume 2, Chapter 13** of the **ES**, Doc. Ref. 6.3)

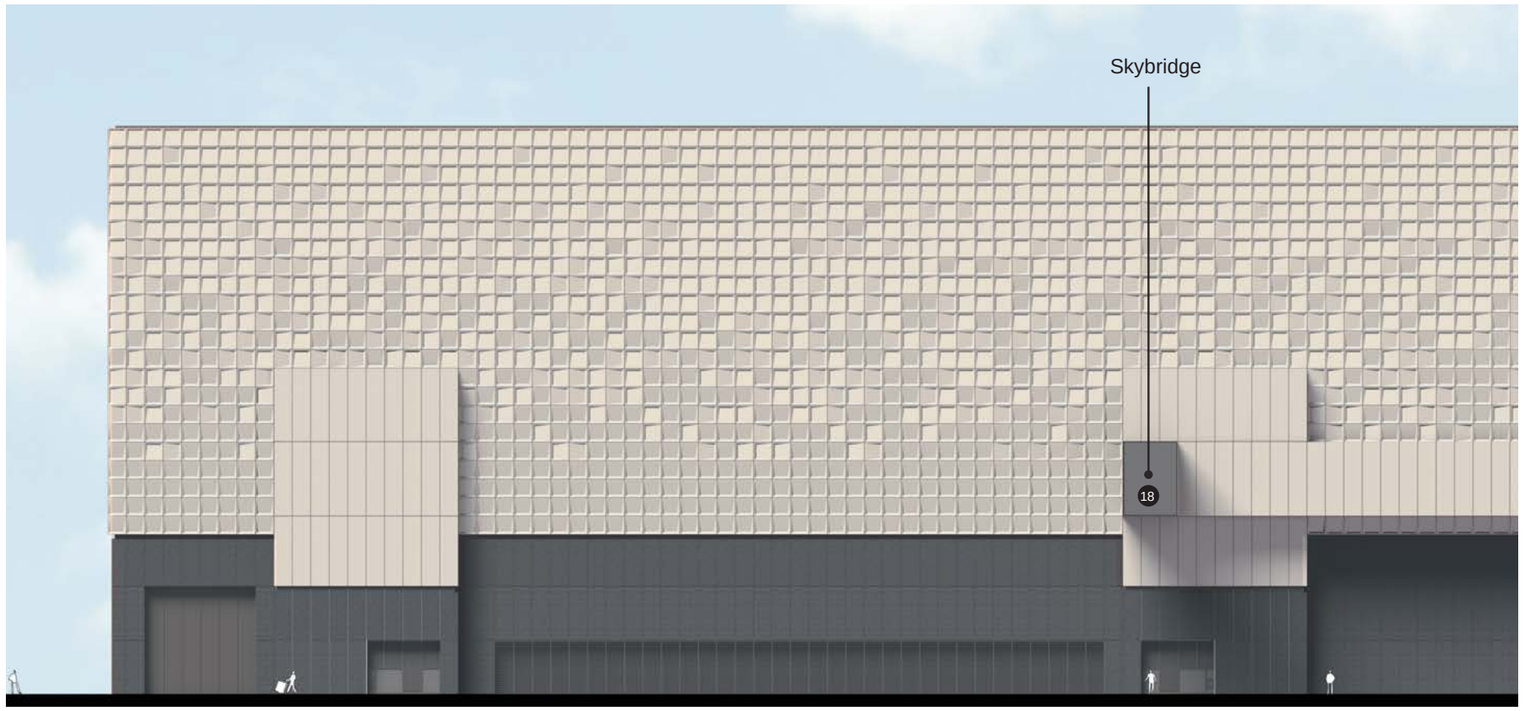


Figure 7.42: Turbine hall unit 1 north elevation, at 1:500

7.11.10 Glass-fibre reinforced concrete panels, or similar approved finish would provide a robust plinth to the turbine halls and would wrap the external facade on a regular 1.5m cladding grid. The plinth is designed to form a durable, robust system appropriate to the industrial activity surrounding it. The panels would provide a solid, recessive and finely textured base to ground the elevated, expressive elements above. The height datum is set to correspond with the plinth height of the adjacent operational service centre and to fall below the height datum of structures which will be screened by the coastal sea defences.

7.11.11 The remaining buildings within the periphery of the conventional island are defined by their function externally, the majority are exposed in-situ concrete with exposed metalwork, equipment and fixtures as required. A high-security fence encloses the required electrical plant, this will be formed by a steel sub-frame and steel mesh fence to ensure personnel safety from the high electrical voltages.

7.11.12 The selection of the final colour and profile for the panels will be informed by the studies undertaken to date, as outlined in this chapter, and will continue to be refined as the development of the building design progress. The final decision on colour and profile will be informed and controlled by the design principles set out in **Chapter 5** of this statement.

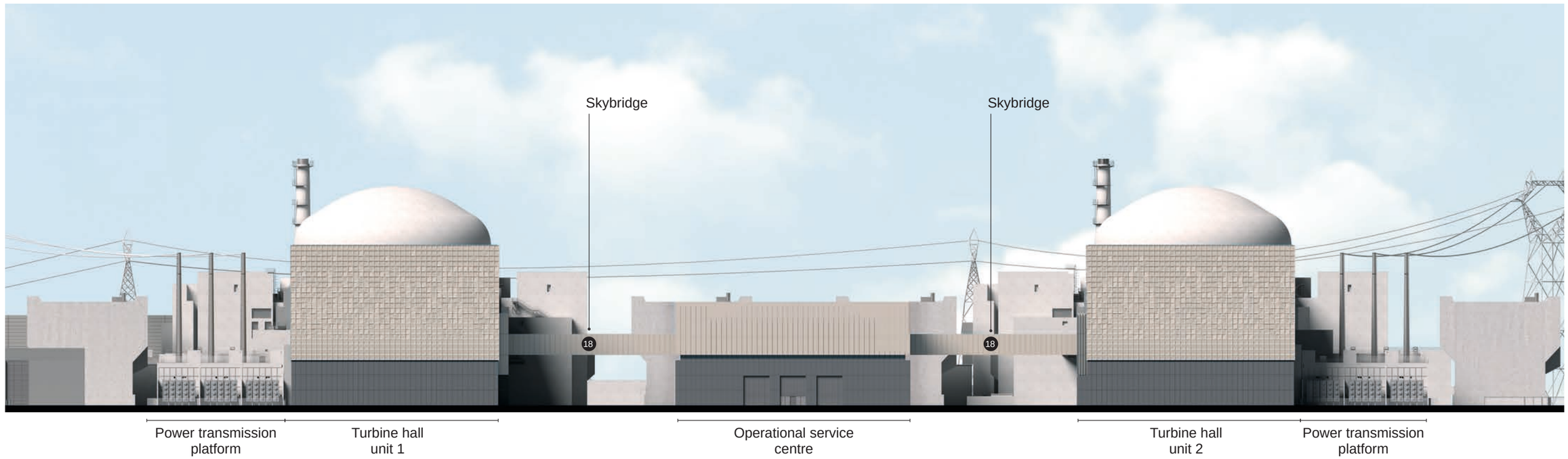


Figure 7.43: Turbine hall's eastern elevation, at 1:1250

Figure 7.44: (Right) North-east aerial view of the turbine halls in context

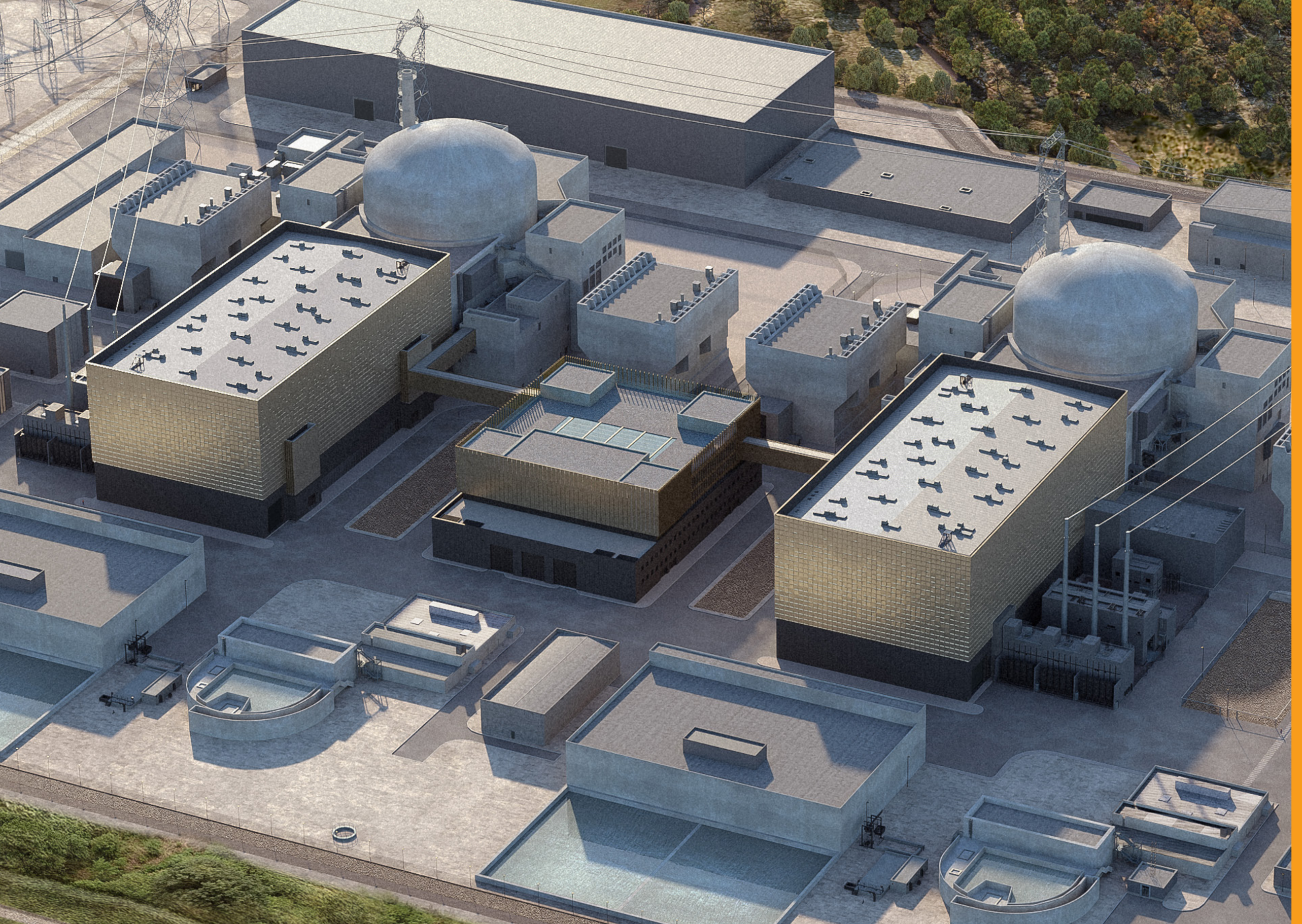


Figure 7.45: Light bronze facade treatment to the turbine halls of Sizewell C (refer to Figure 13.10.24 of **Volume 2, Chapter 13** of the **ES**)

Figure 7.46: Medium bronze facade treatment to the turbine halls of Sizewell C (also right) (refer to Figure 13.10.24 of **Volume 2, Chapter 13** of the **ES**)

Figure 7.47: Darker bronze facade treatment to the turbine halls of Sizewell C (refer to Figure 13.10.24 of **Volume 2, Chapter 13** of the **ES**)

7:C Operations

"Design decisions on particular elements are not made in isolation as the whole is greater than the sum of its parts. More variation between the OSC and the reactor buildings could be investigated... be creative in their approach to the indoor and outdoor experience for the staff."

CABE at Design Council (November 2019)

7.12 Operations overview

7.12.1 As identified in **Chapter 6,** a key design response to the Sizewell context has been to reduce the power station's permanent development footprint. All opportunities have been taken to create a single operational service centre, which consolidates operational, workforce and training facilities into a single structure located at the heart of the operational platform.

7.12.2 This approach benefits the wider environment by limiting the physical sprawl of the development, reducing the visual impact on the Sizewell skyline within distant views and aiding operational functionality by reducing pedestrian and vehicular movements and travel distances within the site.

7.12.3 The operational service centre is designed to relate in scale and articulation to the turbine halls and forms an integral part of the classical, scaleless geometry of the Sizewell C composition. The building unites the larger rectilinear forms of the turbine halls and helps to reduce the scale of their perceived mass.

7.12.4 The conceptual expression of these forms together with the desire to minimise light spill and reduce human scale elements along the eastern façade drives the operational service centre to become a centrally focussed, inward orientated courtyard building.

7.12.5 During the Sizewell C consultation process concerns were raised by the local authorities regarding additional development within the AONB; one of the design measures to address this has been to remove the training centre formerly proposed to be located on Goose Hill. A review of how the training facilities would be used has enabled the simulator suite to be positioned inside the security fence within the operational service centre, recognising that other technical training facilities could be located elsewhere off-site.

OVERARCHING DESIGN PRINCIPLE 25.

SZC Co. will provide a high-quality workplace for the entire power station workforce.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 49.

Eastern facades on the main platform will generally be formed of solid components without glazed openings to reduce light spill.

DETAILED BUILT DEVELOPMENT PRINCIPLE BEYOND MAIN PLATFORM 66.

Designs for built forms will respond to the 'wilderness quality' of the power station environment by reducing the appearance of human habitation, through reduced human scale openings and external fixtures being visible from coastal views as far as reasonably practicable and within operational requirements.

Figure 7.48: Sizewell C overview

Legend

- Nuclear island
- Conventional island
- Ancillary - plant, office/access, storage, fuel and waste buildings
- Sizewell B relocated facilities
- Cooling water pumphouse and associated structures
- Operational service centre
- Peripheral buildings within the SZC Co. estate
- Sea defences and platform bank

Operational service centre

24 Operational service centre containing:

- Site offices
- Staff restaurant
- Warehouses
- Workshops
- Medical centre
- Laboratories
- Outage welfare facilities
- Training centre

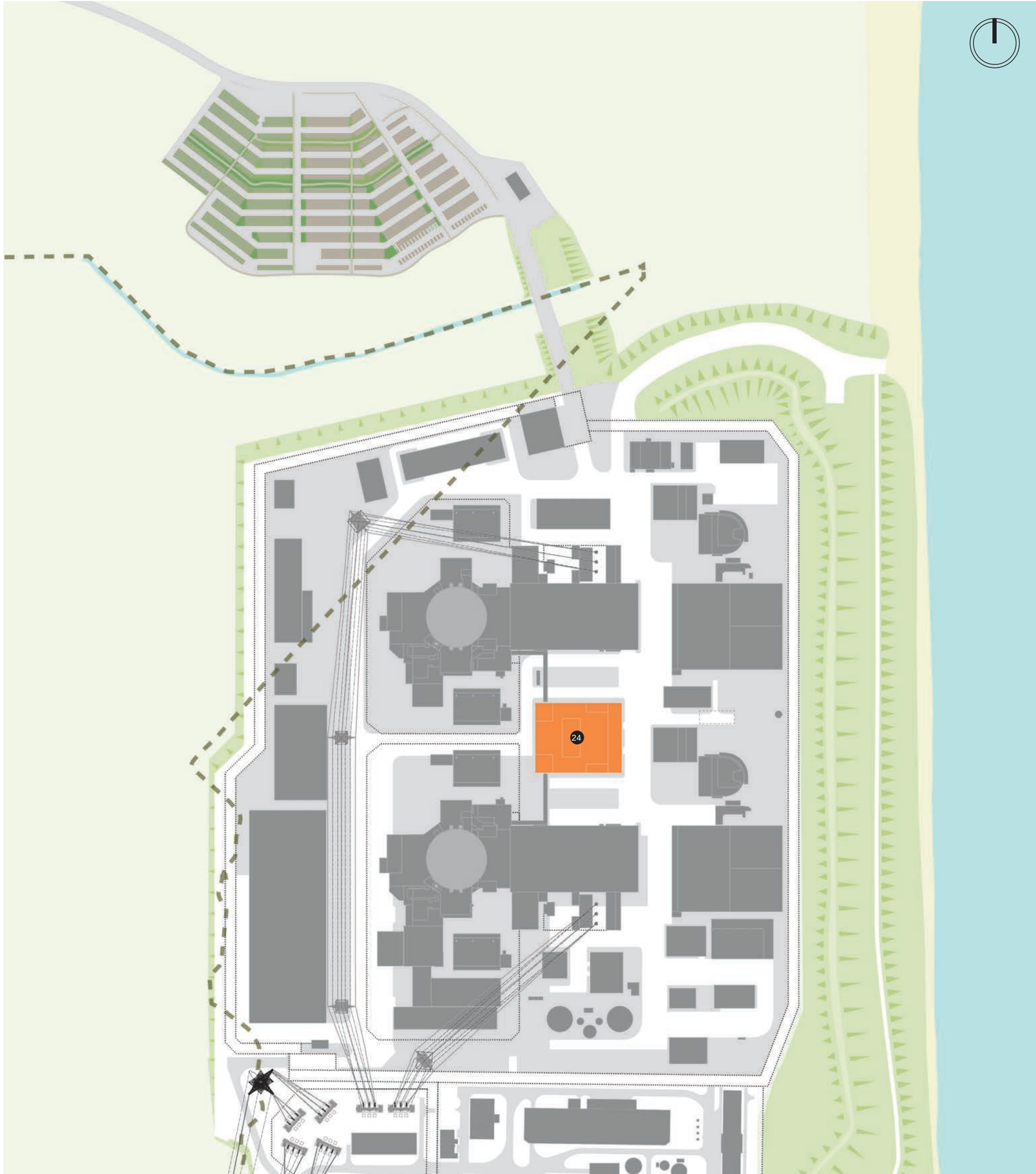
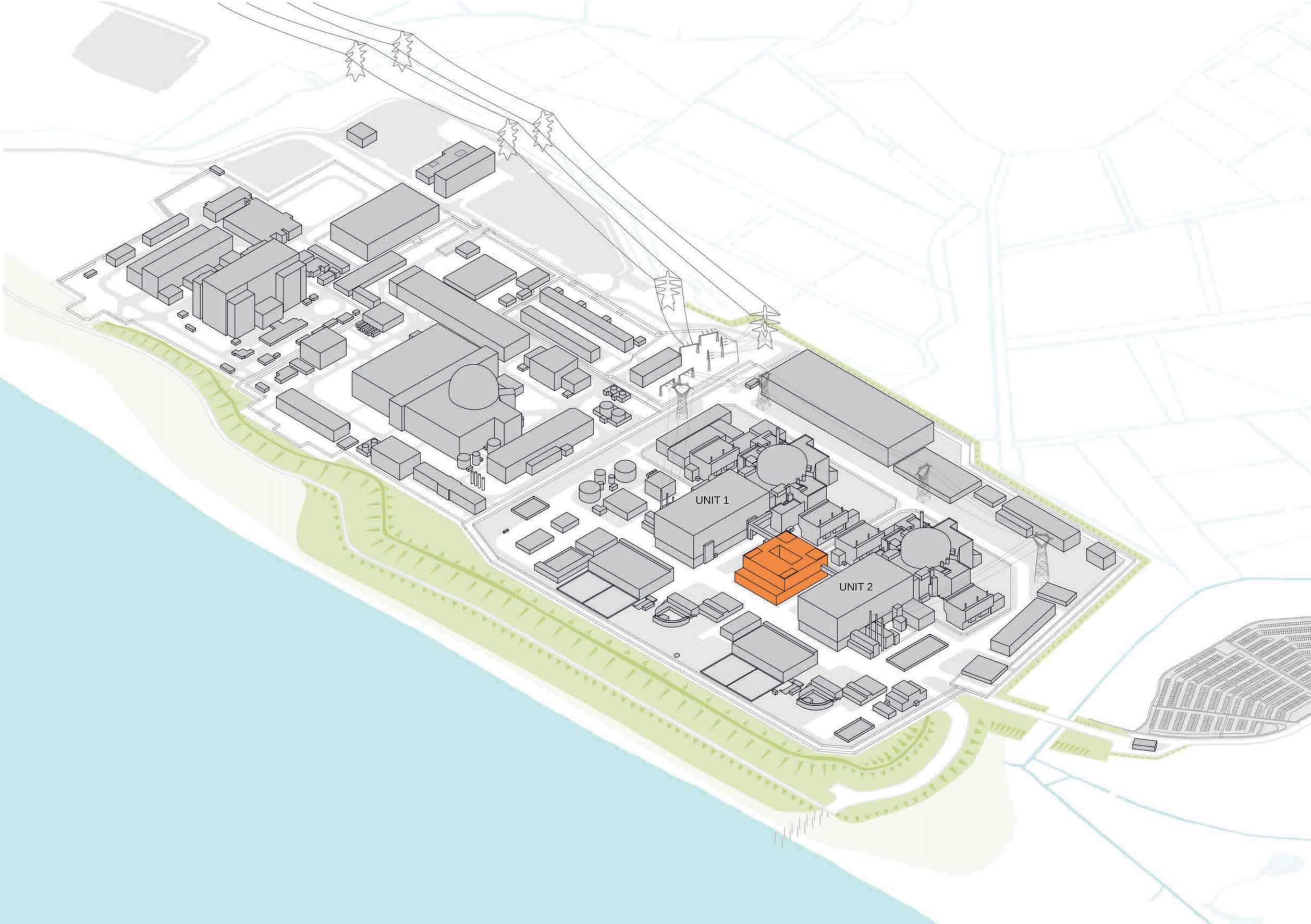


Figure 7.49: Operations layout centralised on site


UNIT 1
UNIT 2

7.13 Operations function

7.13.1 The operational service centre combines many functions under one roof, the following facilities are set out as independent requirements which are met within a single building.

7.13.2 Site offices

7.13.3 The operational service centre would provide the principal accommodation for the workforce within the Sizewell C development site, this requires a mix of cellular and open plan office space with different use patterns and security levels. Many of the office spaces have specific adjacency requirements to technical areas housed elsewhere within the operational service centre. The office accommodation provided would aim to meet best practice guidance including the British Council for Offices (BCO) standards.

7.13.4 There is future resiliency designed into the upper office floor plans to accommodate additional workers required during outage periods.

7.13.5 First and second floor mezzanine levels within the podium are occupied by open plan offices, which require good access to and visual connections to the warehouse and workshop below for operations and maintenance.

7.13.6 The workforce accommodation requires special consideration in terms of acoustic protection both from industrial lower levels inside the building and from air borne sound transmission from the adjacent turbine halls.

7.13.7 Staff restaurant

7.13.8 The staff restaurant on the third floor, would form the central welfare hub within the building and for the main development site as a whole. The restaurant is designed to accommodate approximately 460 covers and would be naturally lit from above through the atrium roof structure. Breakout space and conference facilities will also be located at this level with the atrium allowing for a generous waiting and spill out area during larger scale events. Kitchens and back of house areas would have direct access to a vertical core and goods lifts at ground level allowing for deliveries and refuse collection.

7.13.9 Warehouse

7.13.10 Double height warehousing facilities located within the building's plinth would provide forklift accessible storage spaces within a secure environment at a central location on the site. There would be a dedicated loading bay for deliveries as well as specialised ventilation and fire protection systems in place for this area of the building.

7.13.11 Workshops

7.13.12 Workshops are located within the buildings plinth and accommodate plant and equipment for manufacture and heavy lifting that may be required on-site. The triple height volume would accommodate plant movements and a loading bay for direct deliveries to the workshop floor. The workshops are industrial in nature and will meet specialist requirements for fire protection, security, acoustic separation and access.

7.13.13 Medical centre

7.13.14 The medical centre would be provided to monitor the health and well-being of staff and also provide GP type treatment for minor injuries. A ground floor trauma room enables direct level access for vehicles in the event of emergency.

7.13.15 Laboratories

7.13.16 Non-active laboratories would support technical and engineering facilities within the site and have specialist environmental, mechanical and electrical requirements for their accommodation.

7.13.17 Outage facilities

7.13.18 Welfare facilities have been calculated based upon shift patterns during outage conditions, which requires WC and locker accommodation for approximately 800 people with 400 using showers. The offices and restaurant facility have been sized for a population of approximately 900 people during normal operation and 1,500 people working in two shifts over a 24-hour period during outage conditions.

7.13.19 Training centre

7.13.20 The training centre simulator facility would be located on the top floor of the operational service centre and would comprise of a secure suite of training rooms with an independent reception and the split-level simulator suite. Training preparation office accommodation would be provided within the suite along with the required observation, documentation and debrief rooms.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 46.

A sense of place and community for the workplace will be created on the main platform.

Figure 7.50: Operations overview diagram (SZB relocated facilities Option 2 layout)

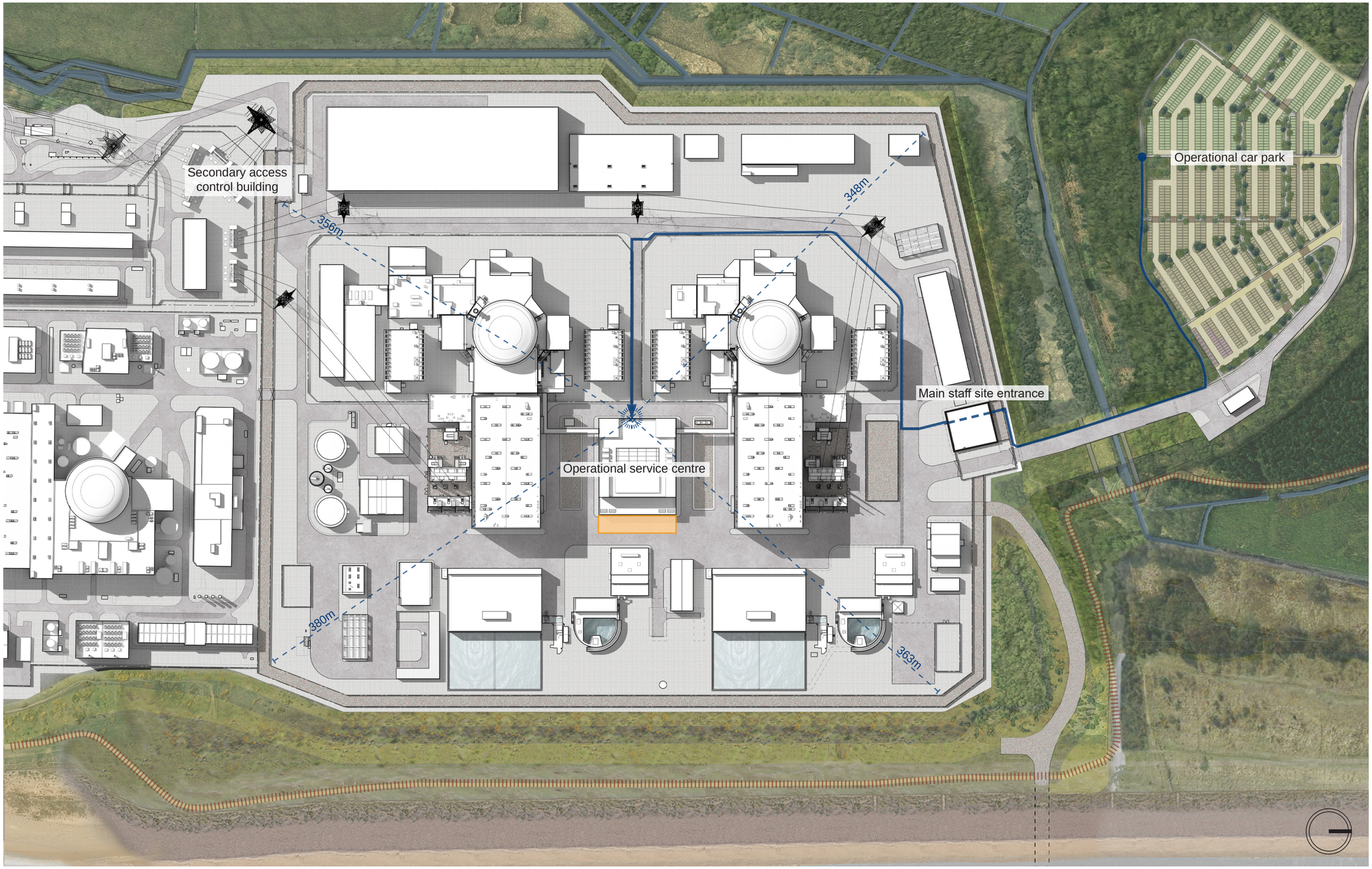


Figure 7.51: Operational service centre at the conceptual heart of the site with connections to adjacent structures above and below ground

7.14 Operations access

7.14.1 The building is designed to be operational 7 days per week on a 24-hour basis, with office accommodation, support facilities and staff restaurant normally operational between 08:00 to 18:00 throughout the year. During outage periods operation of all facilities in the building would be extended and be accessible over a 24-hour period.

7.14.2 The large vehicular entrances for the operational service centre are punched into the solid eastern façade opening directly onto the sites main circulatory loop road. The main pedestrian and staff entrance however, is located within the heart of the site on the building's western elevation, this affords it a degree of protection from frequent vehicle movements and provides greater flexibility for a glazed entrance façade and visible activity within the building on approach to the workplace. The operational service centre has a complex security strategy which is managed within the building, turnstiles are provided at the entrance to monitor who is inside the building at all times.

7.14.3 In the event of a nuclear evacuation internal muster points would be located within the staff restaurant and at ground floor level, they are designed to accommodate 500 people at each location. The operational service centre is one of the few buildings on-site which would be designed in accordance with UK Building Regulations *'Approved Document Part M – Access to and Use of Buildings'.*

7.14.4 Staff working within the operational service centre would make use of permanent parking facilities which are located on Goose Hill. The staff pedestrian route to the building entrance is 860m and any additional access requirements or transportation required would be managed by the main access control building at the site entrance.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 34.

Landscape design will provide character to those external areas and routes within the main platform that are used most intensively by workers on foot.

Legend

- Operational service centre entrance
- Vehicle access to operational service centre
- Main staff access route
- Public footpath

Figure 7.52: North-east aerial view of the operational service centre

7.15 Operations concept

7.15.1 The operational service centre would be the conceptual heart of the site and it forms an important element of the Sizewell C formal set-piece of pure geometric forms. The buildings external expression is one of a simplified mass which would have no discernible human scale components visible from views within the surrounding landscape. In order to achieve this the eastern elevation would form a solid skin relating more closely to the neighbouring turbine halls than its inhabitants within.

7.15.2 As identified in **Chapter 6** of this statement, lightspill is a key concern for the Sizewell site and as the operational service centre would be occupied 24 hours a day, the building envelope must reduce its light emissions whilst providing adequate daylighting to the interior accommodation. The building has been arranged to allow the eastern coastal façade to be completely solid to reduce human scale elements and lightspill towards the coast. The 'black box' simulation facility of the training centre is positioned towards the coastal façade on the upper storey and back-of-house storage and plant areas which do not require natural light are located along the eastern façade on lower levels.

Figure 7.53: Impacts of 24 hour operation and lightspill

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 50.

The external lighting design will respond to the maintenance and security brief but where practicable will minimise light spill beyond the perimeter of the power station site, particularly on the eastern side of the platform.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 51.

Security systems and lighting will be integrated, evenly set-out and applied consistently to all facades to reduce the appearance of visual clutter as far as reasonably practicable.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 47.

Workforce buildings, occupied by large numbers of staff, will respond to occupants' needs for access, daylight, shading and ventilation.

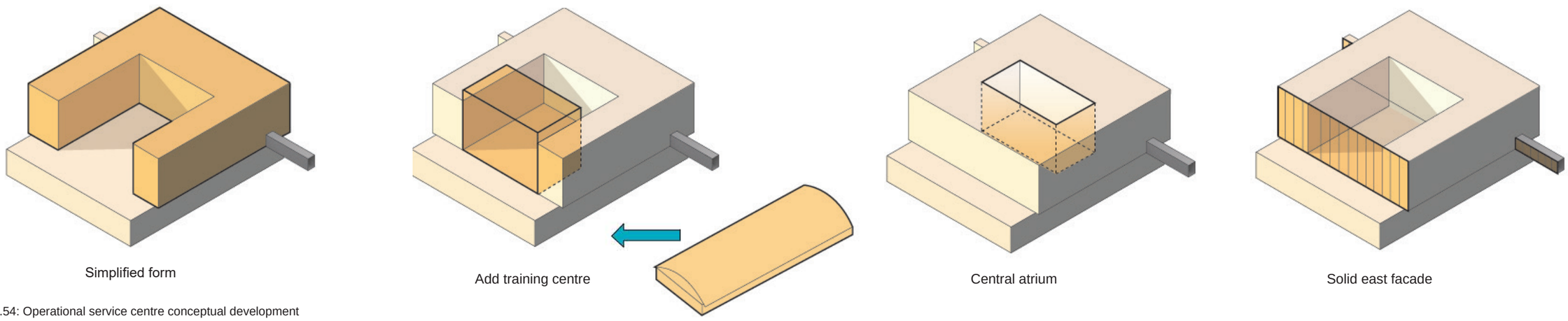


Figure 7.54: Operational service centre conceptual development

7.15.3 This complex building is arranged to accommodate its various functions on a floor-plate by floor-plate basis. The lower levels are predominantly industrial use housed within the robust plinth, which is punctured on the eastern façade by only louvered openings and industrial sized vehicular and pedestrian access points as required.

7.15.4 The floor above this is dedicated to the staff restaurant which would comprise a high quality, triple height atrium providing the primary space for human habitation within the operational platform. This floor will be accessible to all with the lowest security level and the greatest flexibility in terms of access and use of all the accommodation within the building. The main offices along with the training centre would be provided above this on the fourth and fifth floors, with the skybridge connections adjoining the building on the fourth floor.

7.15.5 The office accommodation would form a courtyard around the upper level of the building, with glazed facades looking down onto the restaurant space within the internal atrium. This layout maximises daylight penetrating the core of the building whilst also providing a sense of activity and human occupation throughout the building for its users. Furthermore, the inward orientation of glazing frees up the façade to respond to external constraints, such as the valuable and special qualities of the Suffolk Coast and Heaths dark skies and wilderness qualities.

7.15.6 The material palette for the operational service centre would be consistent in finish to the turbine hall's cladding, further emphasising their composite nature. The elevated upper storeys would be clad in a curtain wall system along a continuous 1.5m grid which accommodates both solid anodised aluminium panels and glazed openings. A dark recessed channel would be visible between panels along the eastern face to provide a regular vertical pattern across the elevations. Cladding panel proportions and height datums are to be coordinated with the turbine hall's panelised system, providing uniformity across the independent structures of the Sizewell C site.

7.15.7 The curtain wall to the third floor would be set back from the upper portion of the façade forming the appearance of an over-scaled shadow gap to enable the elevated operational block to float above the building's robust and industrial plinth.

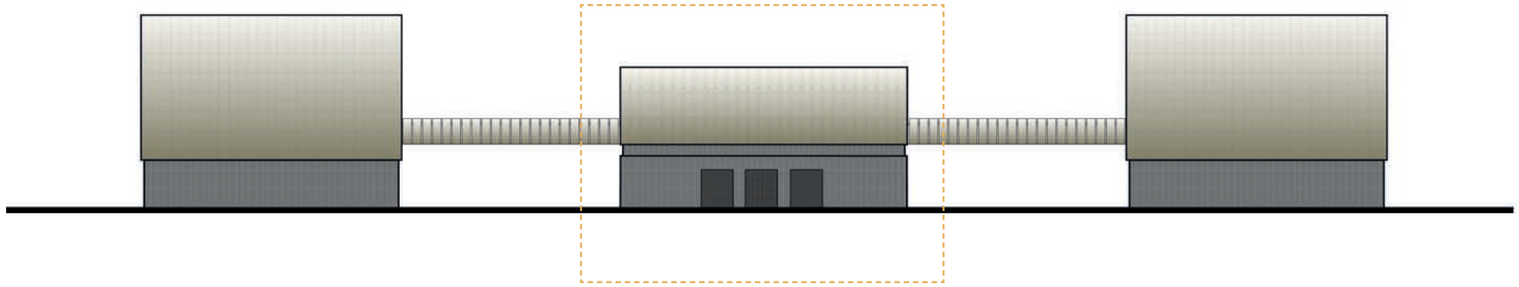


Figure 7.55: Operational service centre at the centre of the classical orthogonal form of the focal structures at Sizewell C

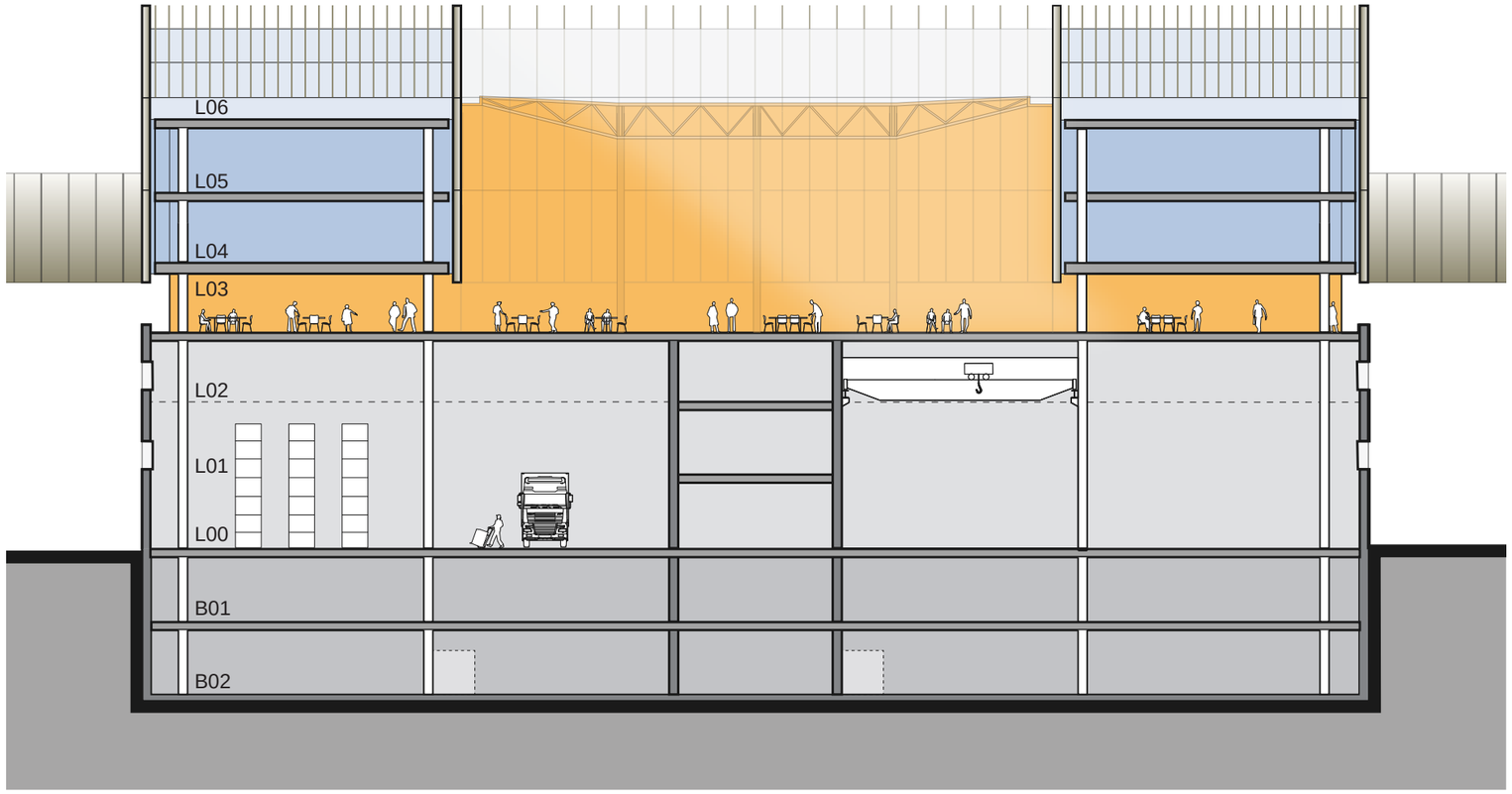


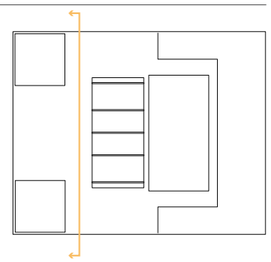
Figure 7.56: Diagrammatic section indicating operational split across differing levels within the building

Legend

Office

Staff restaurant / welfare / breakout

Industrial: warehouse / workshops



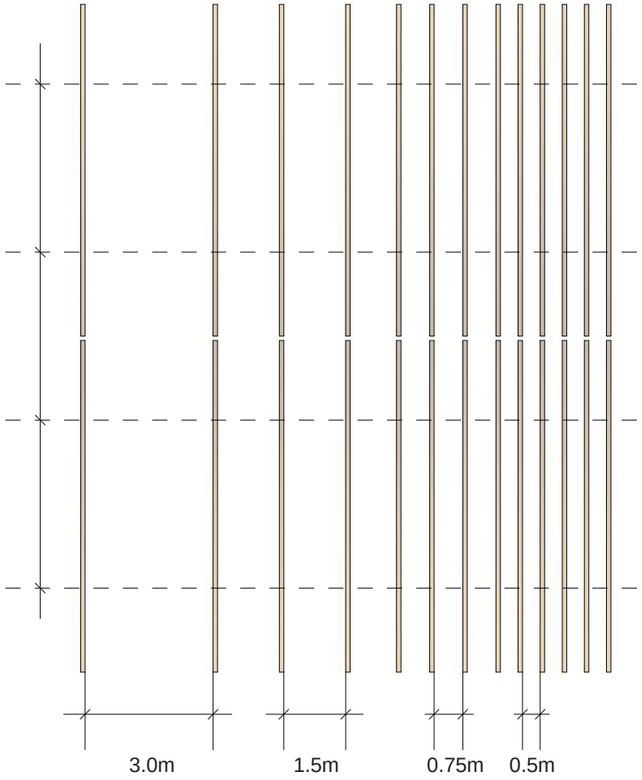


Figure 7.57: Fin spacing in order to provide natural light to the interior office space whilst mitigating light spill externally

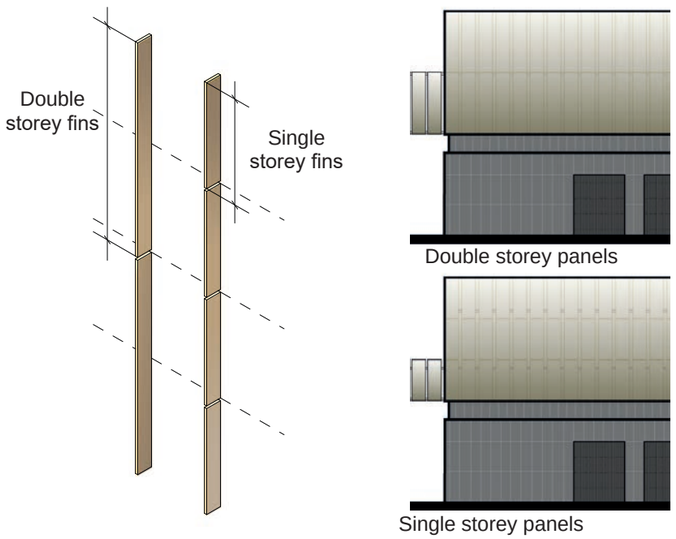


Figure 7.58: Fin proportions reduce perceptions of scales

7.15.8 Except for on the buildings solid eastern façade, vertical fins would be provided at mullion positions around the building's exterior. The fins provide solar shading as well as reducing lightspill on the northern and southern facades towards the coast. The fins are to be oversized in length and over sail the upper stories of the operational service centre at the head and the base in order to reduce the perceived scale of the building. They would be tall and slender in proportion and cast a variegated pattern of shadow adding depth and interest to the façade, as illustrated in **Figures 7.59** and **7.60**. The fins are more closely spaced at the solid corners of the building and are more open at the centre of the floor plate to maximise daylight penetration into the office floors. The density of fin spacing apparent from the exterior of the building therefore reflects the activity taking place within it.

7.15.9 The industrial plinth would only be visible from within the Sizewell C site and would ground the building in a dark, recessive yet warm tone base, refer to **Figures 7.59** and **7.60**. It would be formed as a punctured volume clad in glass-fibre reinforced concrete panels, or similar approved finish consistent with the turbine halls base. The plinth expresses robust solidity, it would be durable and will require very little maintenance. At ground level the texture would be tactile with a small radius to exposed edges to mitigate against impact damage. A rhythm of smaller scale recesses and openings form the overall composition to the lower band of the building to the northern and southern facades, these relate to inhabited space within and sets the central workforce building apart from its adjacent industrial structures.

Figure 7.59: View showing the eastern elevation and building sequence of the operational service centre between the turbine halls

Figure 7.60: View towards the operational service centre from within the main development site

7:D Cooling water pumphouse and associated structures

7.16 Cooling water pumphouse and associated structures overview

7.16.1 The cooling water pumphouse and associated structures are located close to the coast and are formed of low level, exposed concrete structures. They are linked to offshore infrastructure and are fixed in location within the operational platform. The majority of their structures are sub-surface with access and maintenance facilities at ground level. The location of the various structures is identified in **Figures 7.61** and **7.62**.

7.16.2 The primary function of these structures is drawing in and circulating sea water within the cooling circuits of the nuclear reactors and turbine halls. There would be one group of cooling water structures serving each of the UK EPR™ reactor units.

7.16.3 The cooling water pumphouse, associated buildings and substructures will be constructed from reinforced in-situ concrete as they are nuclear safety structures subject to GDA approval. Applied finishes or cladding would be avoided in order to facilitate visual inspection for cracks and maintenance access.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 62.

The structural concrete of the safety related buildings will be exposed, without additional finishes and will be easily accessible without obstruction for ease of maintenance and inspection, in accordance with operational requirements.

7.16.4 The visible above ground structures comprise:

- forebay;
- cooling water pumphouse;
- filtering debris recovery pit;
- outfall pond building; and
- fire-fighting water distribution building.

7.16.5 The off-shore infrastructure located at or below the sea-bed includes:

- four seabed cooling water intake structures;
- two cooling water intake tunnels;
- two seabed cooling water outfall structures;
- one combined outfall tunnel; and
- fish recovery and return tunnels and outfall structures.

Figure 7.61: Sizewell C overview

Legend

- Nuclear island
- Conventional island
- Ancillary - plant, office/access, storage, fuel and waste buildings
- Sizewell B relocated facilities
- Cooling water pumphouse and associated structures
- Operational service centre
- Peripheral buildings within the SZC Co. estate
- Sea defences and platform bank

Cooling water pumphouse and associated structures

25 Cooling water pumphouse

26 Forebay

27 Outfall pond building

28 Filtering debris recovery pit

29 Fire-fighting water distribution building

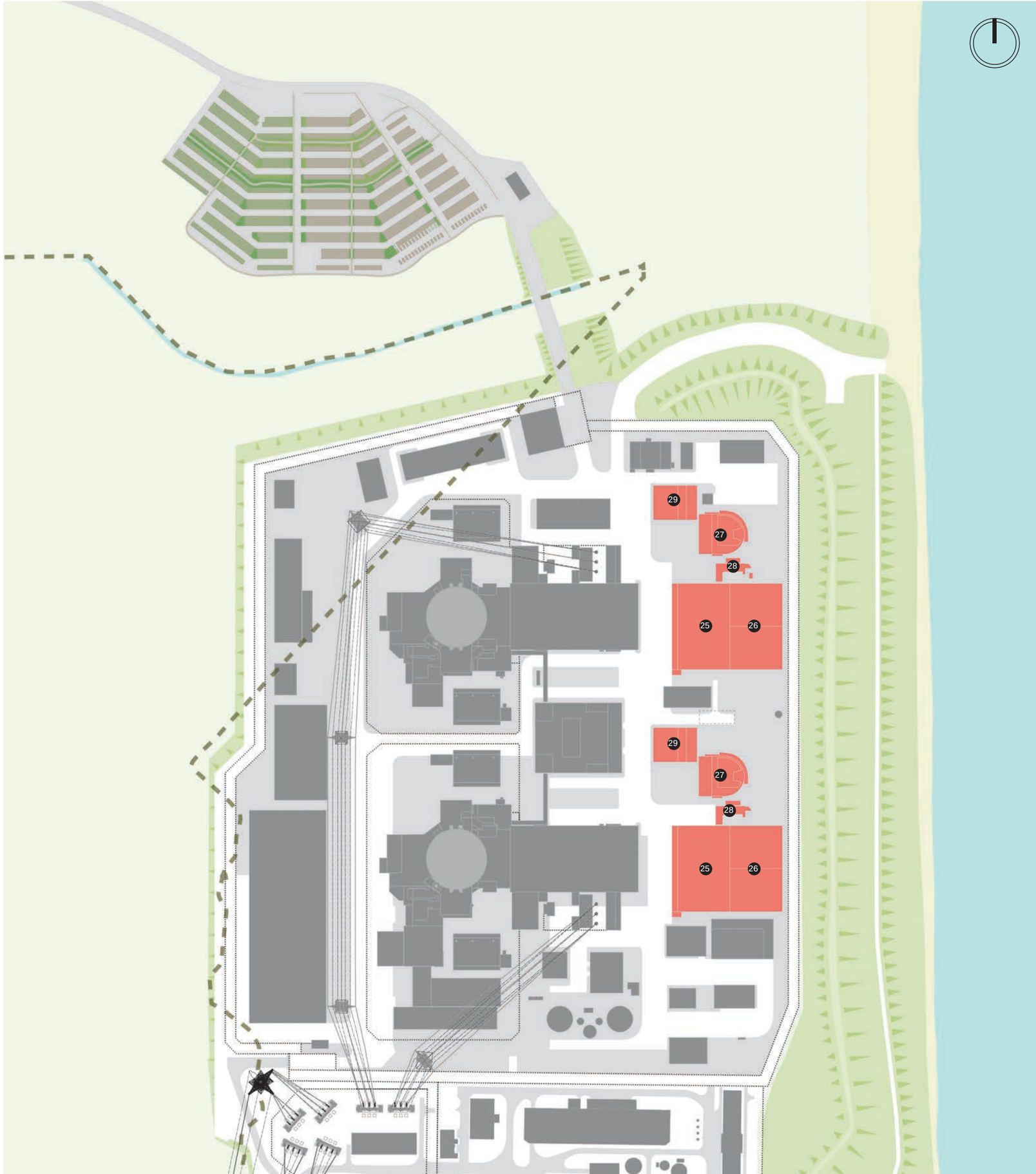
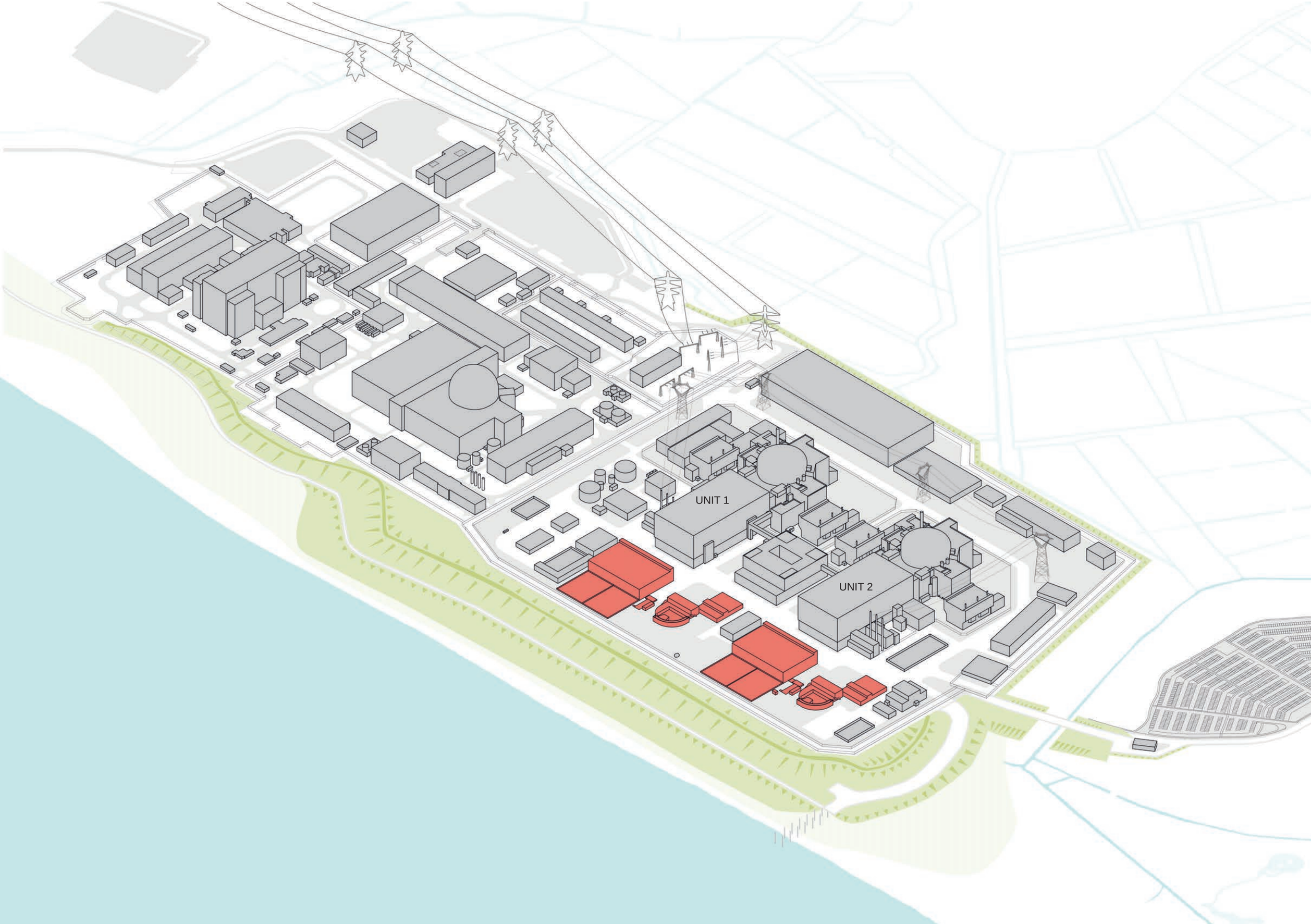


Figure 7.62: Cooling water pumphouse and associated structures operational layout


UNIT 1
UNIT 2

7.17 Cooling water pumphouse and associated structures function

7.17.1 Cooling water pumphouse (25)

7.17.2 The cooling water pumphouse would house the main cooling water pumps, which draw sea water from the forebay via a series of screens (drum, band and self-raking) and supply it to:

- the nuclear and conventional islands' auxiliary cooling water systems; and
- the condenser cooling system that cools the turbine exhaust steam and condenses it to liquid water for reuse as feed water within the secondary circuit.

7.17.3 The drum and band screens remove debris including marine organisms from the cooling water flow in order to prevent blockage of condensers and other heat exchangers in the UK EPR™ reactors.

7.17.4 Forebay (26)

7.17.5 The forebay is an open rectangular basin, which would receive water from the cooling water intake tunnels to distribute incoming cooling water across the face of the various cooling water screens. It also provides a sufficiently uncontained volume of water that will absorb the impacts of cooling water pump start-up and cessation through changes in level (surges) without attenuating the cooling water supply itself.

7.17.6 A single cooling water intake tunnel would run from two seabed intakes and feed directly into each open forebay. Two additional forebay link tunnels would run underground inland of the coast, parallel with the shoreline to connect the forebays of the two units. In order to satisfy safety-related cooling water system needs, these provide redundancy should either of the intake tunnels become blocked.

7.17.7 Outfall pond building (27)

7.17.8 Warmed abstracted sea water which has served its cooling function, will be conveyed back to the marine environment via the outfall pond building sometimes known as the surge chamber. This pond would be open to the atmosphere, with an outlet tunnel which leads to the offshore discharge tunnel for final water discharge out to sea.

7.17.9 The function of the outfall pond building, similarly to the forebay, provides an open surface volume which will release any positive or negative surge in hydrostatic pressure caused by cooling water pump start-up and cessation.

7.17.10 Filtering debris recovery pit (28)

7.17.11 The plant for managing fish recovery and screen debris would be an integrated component of the cooling water system which is designed to minimise physical trauma to fish and other organisms to help ensure safe return to the marine environment.

7.17.12 Further detail on the FRR system and cooling water tunnels can be found in **Volume 2, Chapter 2** and **Chapter 22** of the **ES** (Doc. Ref. 6.3).

7.17.13 Fire-fighting water distribution building (29)

7.17.14 This building would provide the fire-fighting water distribution supply for each UK EPR™ reactor unit and house a facility for providing emergency water supplies to the nuclear island.

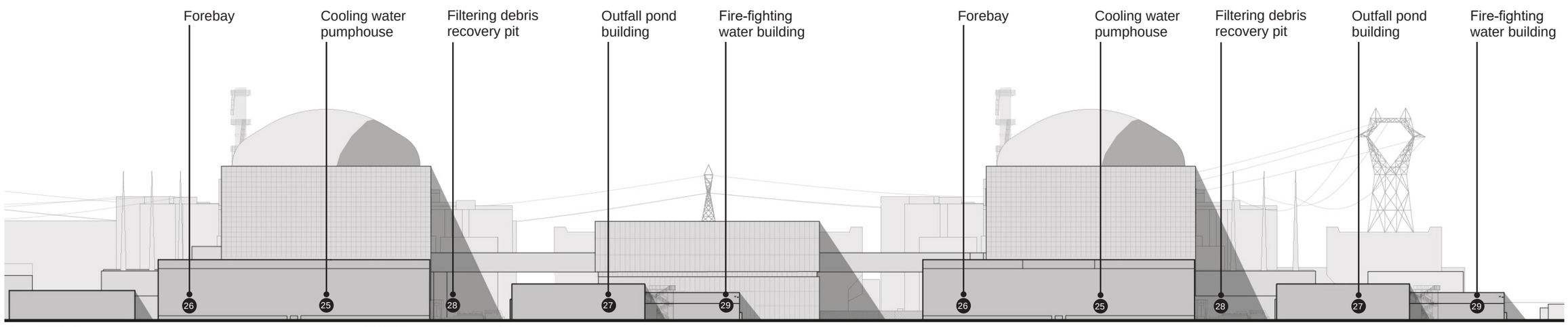


Figure 7.64: Cooling water pumphouse and associated structures for UK EPR™ unit 1 and unit 2, east elevation

Figure 7.63: (Left) Cooling water infrastructure overview diagram (SZB relocated facilities Option 2 layout)

7.18 Cooling water pumphouse and associated structures concept

7.18.1 The concept for these structures is to locate them in a compact arrangement to reduce the overall footprint of the Sizewell C platform and to minimise their visual impact as far as practicable through screening them from external view with the profiled landform of the coastal sea defences. The buildings are defined by their function, they are to be constructions of simplified geometry with clean profiles and limited external fixtures and human scale additions as far as possible.

7.18.2 The buildings would predominantly be low-level, recessive concrete structures which are exposed for inspection and maintenance purposes in accordance with UK EPR™ generic design requirements. They would be constructed from in-situ concrete with minimal openings. Metal doors and louvres are provided as required and could be anodised or powder coated in line with the possible accent colour strategy employed throughout the site.

7.18.3 The buildings would comprise access points to below ground structures, servicing and maintenance plant to support water movements on-site. Vehicle access would be available directly from the circulation route with space for vehicle turning and fire tender access.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 63.

Exposed concrete will have a consistent pale grey finish as far as reasonably practicable. Careful on-site attention will be given to the change in batch of aggregates and setting-out of day joints to ensure a consistent even finish can be achieved, subject to operational requirements.

DETAILED BUILT DEVELOPMENT PRINCIPLE BEYOND MAIN PLATFORM 73.

The design of the coastal defences will be given careful consideration to control the views to the operational site buildings, with a view to minimising visibility of smaller buildings and structures.

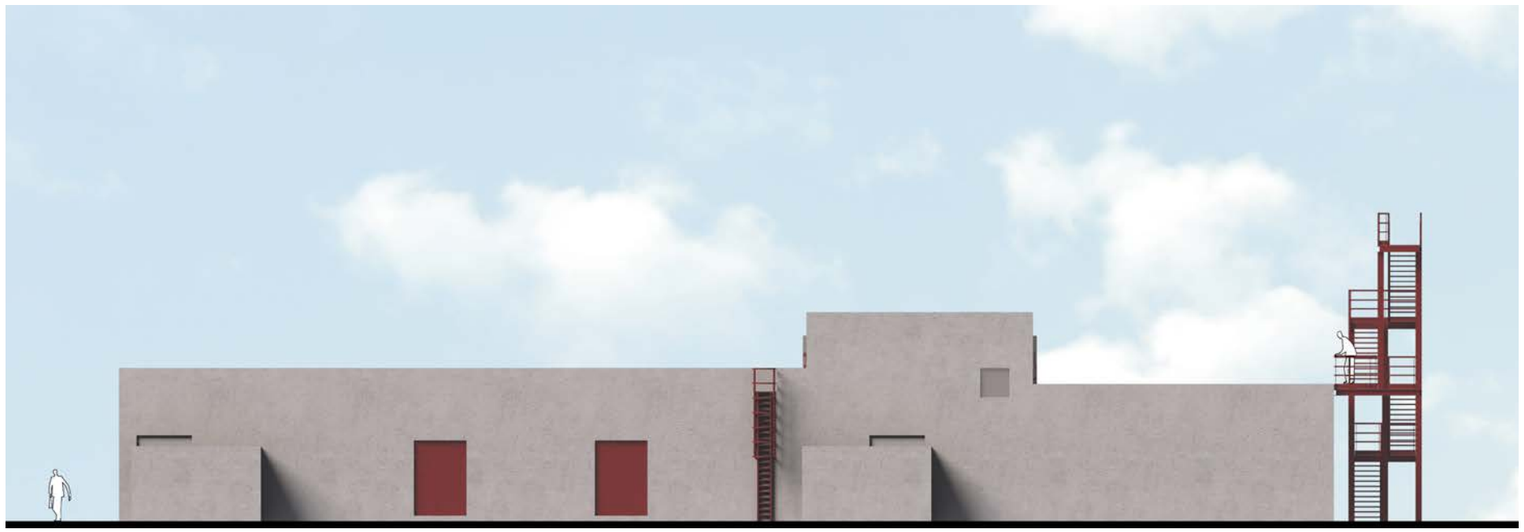


Figure 7.65: Fire-fighting water distribution building south elevation, at 1:200

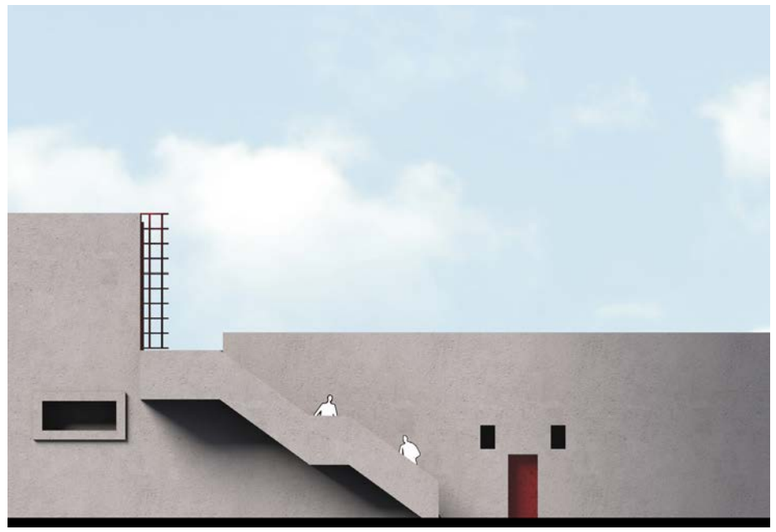


Figure 7.66: Outfall pond building east elevation, at 1:200

Figure 7.67: Overview image for the cooling water infrastructure at Sizewell C

7:E Ancillary buildings

7.19 Ancillary buildings overview

7.19.1 The ancillary group of buildings contains a broad range of support structures and facilities which maintain the daily function of the power station. Although each differs in use, it is important to the Sizewell C concept for them to comprise of a consistently treated family of structures which form the recessive backdrop to the more prominent structures on-site.

7.19.2 These buildings surround the nuclear and conventional islands and although they have certain adjacencies and dimensional requirements, the majority are flexible in their location when compared to the primary structures within the platform. They are predominantly above ground structures and can therefore be sited in the space between more fixed prominent structures on the site. This helps to reduce their visual impact from external viewpoints as well as reducing the overall platform footprint.

7.19.3 The ancillary buildings and structures have different functional requirements, however they would be simplified externally, where possible, to reduce their visual impact and would adhere to a simple and flexible material and component palette, in general accordance with the design principles. This, alongside a set of clear guidelines, would establish them as a united set of coherent structures throughout the site.

7.19.4 The material palette for these buildings may consist of:

- exposed in-situ concrete which requires inspection and maintenance and in a similar nature to the structural grade finish of nuclear island buildings;
- profiled metal sheet cladding;
- polyester powder coated steel cladding;
- aluminium standing seam roof cladding;
- anodised aluminium louvres for ventilation;
- framed glazing system to meet high security requirements and provide protection from external threats. This will include opaque spandrel panels as required; and
- recessed doors for entrances and vehicles.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 58.

The treatment of ancillary and plant buildings within the main platform will seek to comprise pure simple, orthogonal forms and will minimise external projections and add-ons as far as reasonably practicable.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 59.

Ancillary and plant buildings will have a consistent façade treatment, comprising a visually recessive colour as far as reasonably practicable.

Figure 7.68: Sizewell C overview

Legend

- Nuclear island
- Conventional island
- Ancillary - plant, office/access, storage, fuel and waste buildings
- Sizewell B relocated facilities
- Cooling water pumphouse and associated structures
- Operational service centre
- Peripheral buildings within the SZC Co. estate
- Sea defences and platform bank

Figure 7.69: (Adjacent) Ancillary buildings operational layout

Ancillary buildings

Office/access

- 30 Main access building
- 31 Secondary access control building
- 32 Auxiliary administration building
- 33 Emergency response centre
- 34 Emergency response energy centre
- 35 Meteorological station

Plant

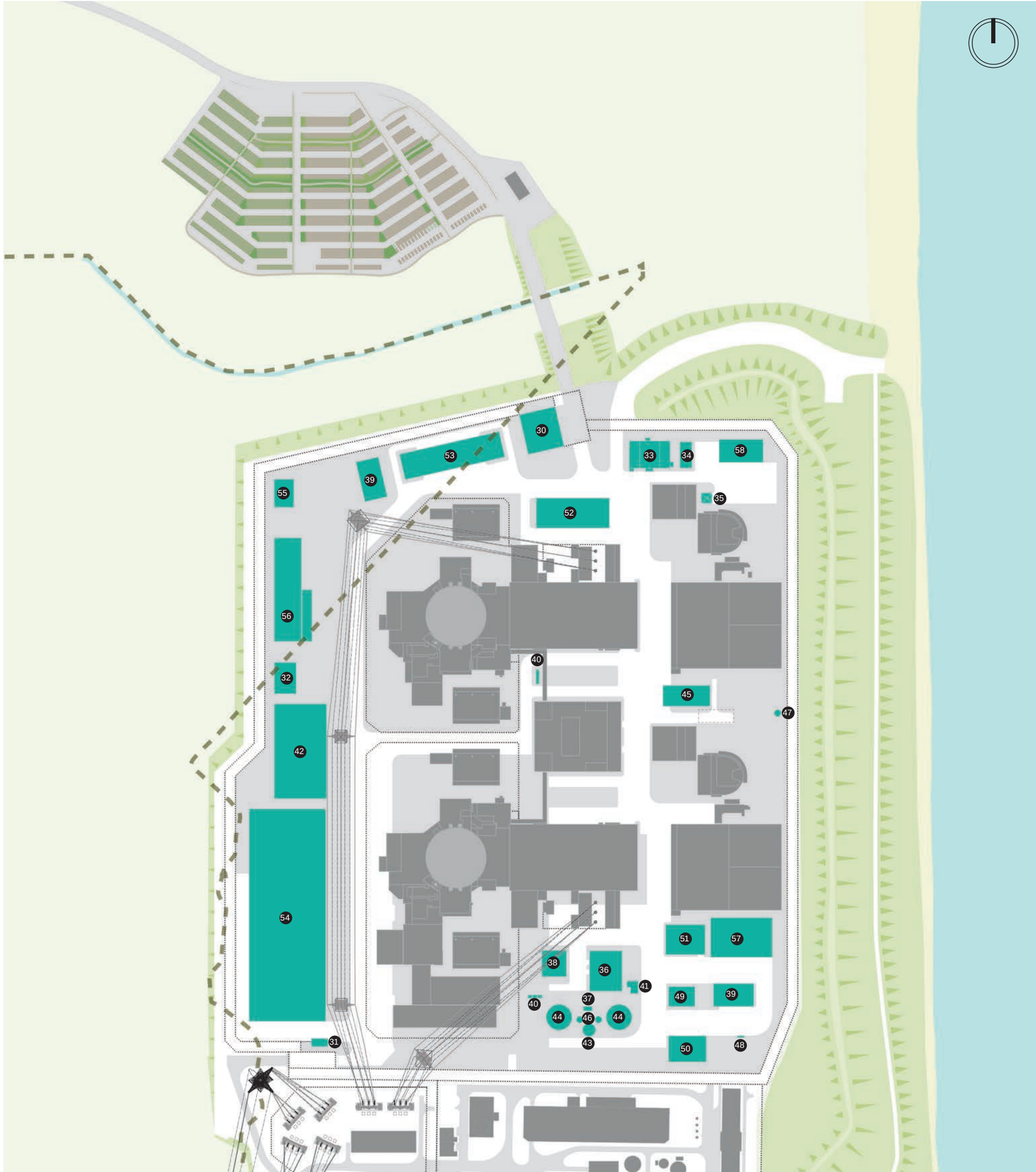
- 36 Demineralisation station
- 37 Valve room for demineralisation station
- 38 Auxiliary boilers building
- 39 Hydrogen storage
- 40 Oxygen storage
- 41 Hydrazine storage
- 42 Raw water supply and storage/supply
- 43 Nuclear island water storage tank
- 44 Conventional island water storage tanks
- 45 Chlorination plant
- 46 Degassed water storage tanks
- 47 Cooling water discharge shaft
- 48 Sewage treatment plant

Storage

- 49 Chemical product store
- 50 Garage for handling facilities
- 51 Oil and grease storage
- 52 Contaminated tools store
- 53 Warehouse

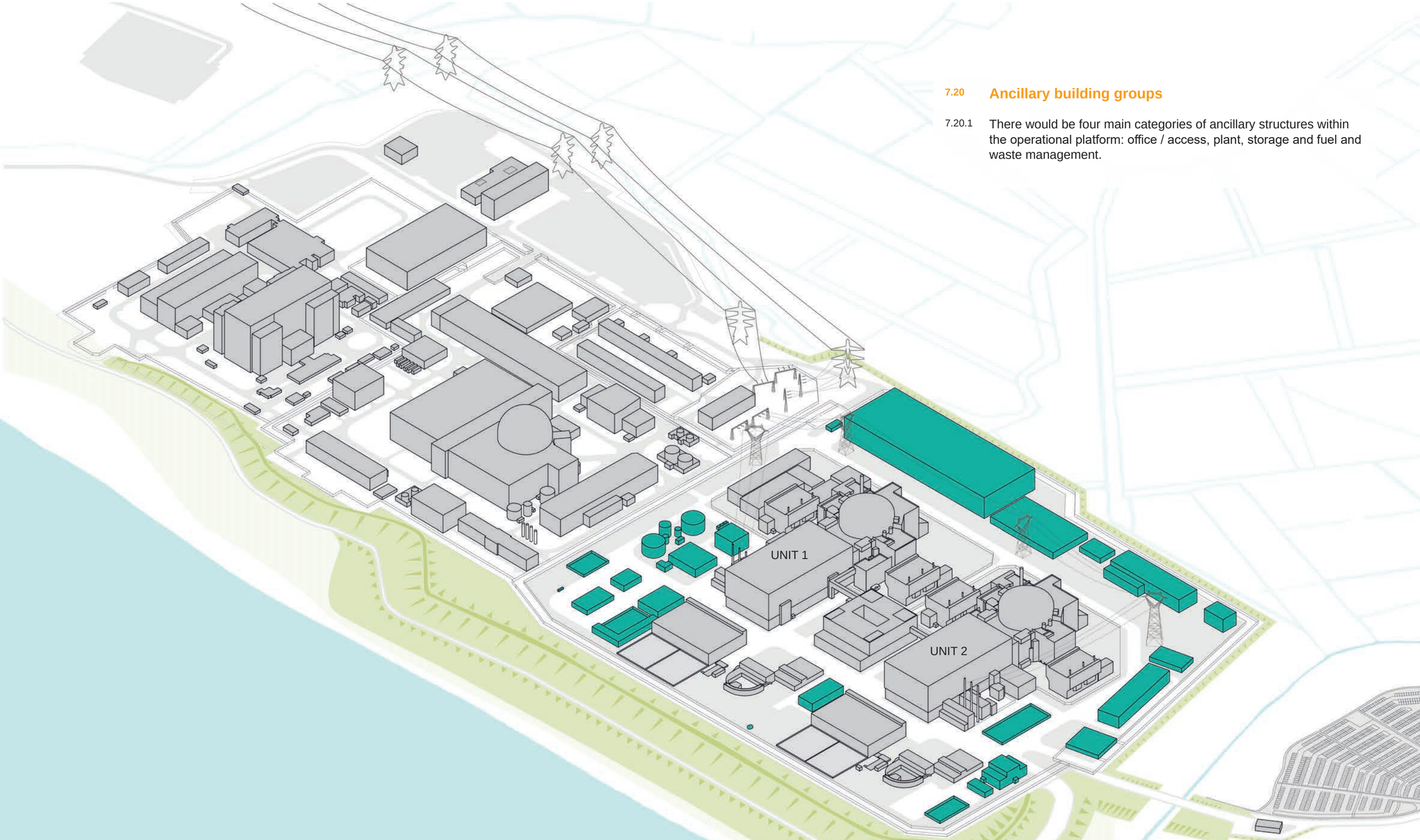
Fuel /waste management

- 54 Interim spent fuel store
- 55 Equipment store for interim spent fuel store
- 56 Intermediate level waste store
- 57 Conventional waste store
- 58 Transit area for very-low and low-level waste



7.20 Ancillary building groups

7.20.1 There would be four main categories of ancillary structures within the operational platform: office / access, plant, storage and fuel and waste management.



7.20.2 Office/access

7.20.3 These buildings would provide facilities to support site logistics, comprising:

- main access control building;
- secondary access control building;
- auxiliary administration building;
- emergency response centre;
- emergency response energy centre; and,
- meteorological station.

7.20.4 These buildings would be located close to the perimeter of the operational platform and would be treated as simple forms as far as practicable. They would be accommodation buildings which would be metal clad with vision glazing and openings to suit internal arrangements and operational requirements.

7.20.5 Due consideration will be given to the UK Building Regulations *'Approved Document Part M – Access to and Use of Buildings'* in the detailed design of access and administration buildings on-site.

7.20.6 Plant

7.20.7 These structures would include equipment and infrastructure to service the site, comprising:

- demineralisation station;
- valve room for demineralisation station;
- auxiliary boilers building;
- hydrogen storage;
- oxygen storage;
- hydrazine storage;
- raw and potable water storage - supply;
- nuclear island water storage tank;
- conventional island water storage tanks;
- chlorination plant;
- degassed water storage tanks;
- cooling water discharge shaft; and
- sewage treatment plant.

7.20.8 The plant structures would be purely functional infrastructure to support and service the operation of the power station. They would be grouped together to retain the compact arrangement of the site.

7.20.9 Storage

7.20.10 These buildings/facilities would provide the space required for production and handling, comprising:

- chemical product store;
- garage for handling facilities;
- oil and grease storage;
- contaminated tools store; and
- warehouse.

7.20.11 Fuel and waste management

7.20.12 Fuel and waste management: These buildings/facilities will include storage and management of waste on-site, comprising:

- interim spent fuel store;
- interim spent fuel store equipment storage building;
- intermediate level waste store;
- conventional waste store; and
- transit area for very-low and low-level waste.

7.20.13 The storage buildings will vary in size, they require large openings for vehicle movements and have predominantly solid facades for screening of internal storage areas. They will be metal clad with areas of exposed concrete facade and louvered ventilation panels as required.

Figure 7.70: (Left) Ancillary buildings overview diagram
(SZB relocated facilities Option 2 layout)

7.21 Ancillary office / access building's function

7.21.1 Main access control building (30)

7.21.2 This building will provide primary access and control of daily entrance and exit to the operational site for personnel and visitors. Power station car parking would be located to the north of the site within Goose Hill, all staff and visitors will be required to approach the site on foot from this northern entrance for security check and admittance to the operational platform.

7.21.3 The facility will be operational 24 hours a day and will comprise three main functions: security screening of personnel entering the secure side of the site, issuing of site passes (the numbers of which are significantly increased during outage periods) and final radiological checking of exiting personnel. Once through the security check personnel will walk to or be transported to their place of work within the site.

7.21.4 Secondary access control building (31)

7.21.5 The secondary access control building would operate as a security facility to control entry to and exit from the site during the construction phase and would act as a secondary access point once the power station is operational.

7.21.6 The building would be located to the south-west of the site, adjacent to Sizewell B. It sits behind the line of the perimeter fence and when not in use, access to the building is restricted by gated entrances. The building also contains a screening hall to enable it to operate as a fully functional back up to the main access control building during the operational phase.

7.21.7 The building will be operational 24 hours a day during the construction phase and would only be used as a secondary access point when required.

7.21.8 Auxiliary administration building (32)

7.21.9 The primary function of the auxiliary administration building is to support the day to day operation of the site whilst providing proportionate welfare, briefing, equipment storage and office facilities. The facility is located within the site secure fence to allow delivery of the its key functions. The building will be occupied full time 24/7 and is required 12 months prior to first fuel on-site.

7.21.10 Emergency response centre (33)

7.21.11 The primary function of the emergency response centre is to house the site's emergency control centre, alternate access control point and other facilities which will be used to control the response to a site emergency. The facility is located within the site secure fence to allow delivery of the its key functions. The centre is an emergency response facility therefore occupancy will vary depending on training requirements and emergency events. The facility is required 12 months prior to first fuel on-site.

7.21.12 Emergency response energy centre (34)

7.21.13 The primary function of the emergency response energy centre is to host power distribution plant (back-up diesel generator, HV ring main unit and transformer, switchboards) and fuel to run the back-up diesel generator and the on-site emergency response facilities and equipment. The facility is located within the site secure fence to allow delivery of its key functions. The facility is not permanently occupied and will only be occupied for operation and maintenance activities. The facility is required 12 months prior to first fuel on-site.

7.21.14 Meteorological station (35)

7.21.15 The primary function of the meteorological station is to monitor and record climatic and atmospheric conditions in close proximity to the power station. Its data will provide important information in the event of an emergency situation, to aid the prediction of the trajectory of any chemical or radiological releases using date obtained from the station. A meteorological mast would also be required as part of this facility.

7.22 Office / Access building's concept

7.22.1 These buildings would be habitable spaces to be used by staff and visitors who are unfamiliar with the site, waiting and orientation facilities are therefore provided alongside security management facilities. They would be reasonably small buildings, which are all close to the site's perimeter and the access buildings are by their location exposed between banks of vegetation. The buildings will maintain a simple form and material expression for the facades in order to minimise their visual presence, however they will feature windows doors and louvered panels as required to suit their internal arrangements.

7.22.2 The office and access buildings will each be designed in accordance with UK Building Regulations *'Approved Document Part M – Access to and Use of Buildings'*.

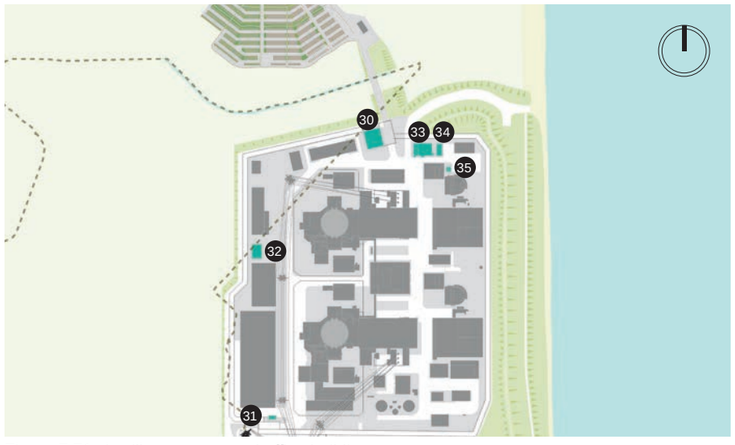


Figure 7.71: Ancillary access and office buildings


Figure 7.72: Main access control building - showing a typical elevational treatment for ancillary access buildings, at 1:100

7.23 Ancillary plant buildings / structures function

7.23.1 Demineralisation station (36)

7.23.2 The demineralisation station would process water delivered to the site via the local water company mains for use in the two UK EPR™ reactor units. The water would then be stored for use in the nuclear island and conventional island water storage tanks. The building would accommodate warehousing, processing space and staffed facilities including a laboratory and control room.

7.23.3 The building requires vehicle access from the main circulation road and accommodates two large warehouse metal access doors within the eastern elevation. All external service areas are designed to allow for vehicle turning and for the unloading of large plant.

7.23.4 Valve room for demineralisation station (37)

7.23.5 The valve room would house necessary valves for the operation of the demineralisation station and to prevent floodwater propagation between buildings in the event of an extreme seismic event.

7.23.6 Auxiliary boilers building (38)

7.23.7 This building would provide steam for heating the deaerator and for turbine gland sealing for start-up of both UK EPR™ reactor units.

Figure 7.73: Ancillary balance of plant buildings

7.23.8 Hydrogen storage and Oxygen storage (39, 40)

7.23.9 The hydrogen and oxygen storage areas for each UK EPR™ reactor unit, would be open compounds providing storage facilities for gas cylinders used by the plant process:

- the hydrogen storage stores hydrogen and nitrogen for the turbine generator and for the nuclear island; and
- the oxygen storage stores oxygen and argon for the nuclear island.

7.23.10 The hydrogen storage area would be the larger of the two compounds, it would comprise an entrance for deliveries and contain facilities for the storage of compressed gas cylinders (nitrogen and hydrogen).

7.23.11 The layout of the oxygen storage is similar to above, but it would also consist of cages for oxygen and argon cylinders which are separated by concrete cells with access gates and a roof.

7.23.12 Hydrazine storage (41)

7.23.13 Bulk storage of hydrazine would be provided for adding to the secondary circuit water to achieve the correct pH to minimise corrosion. Due to the volume of storage required, the hydrazine will be stored outside the turbine halls in dedicated tanks. An equipment room will be provided in association with the tanks.

7.23.14 Raw and potable water storage/supply (42)

7.23.15 The raw and potable water storage/supply will be a facility which provides a balancing (buffer) tank for the raw water supply from the local water company and will also supply raw water to downstream users. The potable water supply stores and boosts the pressure of the mains potable supply. The raw and potable water storage/supply is underground.

7.23.16 Nuclear island water storage tank (43)

7.23.17 The nuclear island water storage tank would store treated water, which is required for use within the nuclear island. The tank would be formed from steel panels and be cylindrical in shape with a set of metal stairs running down the tank's side.

7.23.18 Conventional island water storage tanks (44)

7.23.19 There would be two conventional island water storage tanks, which house treated water for use in the steam cycle which powers the turbines. The tanks would be formed from steel panels and be cylindrical in shape with a set of metal stairs running down the tanks' side.

7.23.20 Chlorination plant (45)

7.23.21 Sizewell C will use seawater to cool the steam condensers and therefore there is a risk that marine animals in the seawater (for example, mussel larvae) will settle and grow within the cooling water system. 'Fouling' like this would reduce the flow through the cooling water system so, to prevent this, certain parts of the system will be dosed with chlorine to prevent any fouling animals from growing within the system. The electro-chlorination building creates chlorine on-site by the electrolysis of seawater. This reduces the need for hypochlorite (an alternative option for the provision of chlorine) to be transported to site from external sources.

7.23.22 Degassed water storage tanks (46)

7.23.23 There would be two proposed tanks (1 per UK EPR™ unit) to store degassed water for the demineralisation station in order for the degasser to work effectively and to provide a water supply for effluent treatment, which takes place in the radioactive waste storage building. The tanks would be located close to the demineralisation station and sit between the conventional island water storage tanks.

7.23.24 Cooling water discharge shaft (47)

7.23.25 This structure provides an access point for a remotely operated vehicle to be sent into the outfall tunnels. Provision of this structure allows greater ability for SZC Co. to safely inspect and maintain the tunnels over the life of the power plant.

7.23.26 Sewage treatment plant (48)

7.23.27 The sewage treatment plant would provide dedicated treatment of sewage generated on-site prior to discharge to the outfall pond building. It would be largely contained below ground level and may include a steel superstructure visible above ground, which would contain mechanical plant. The enclosed plant reduces the potential for sewage smell and nuisance.

7.24 Ancillary plant buildings / structures concept

7.24.1 The plant buildings are to be as simple in form and appearance as possible, however they are driven by their function and will comprise a standard palette of suitable materials and components, in general accordance with the design principles.

7.24.2 Access will be provided as required to each of the structures, which will include regularly utilised delivery loading and turning space.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 52.

Subject to operational requirements, all roof level plant equipment and protrusions will be concealed behind a raised building parapet as far as is reasonably practicable. Roof parapets will be of a generally consistent design and detail across site structures. A bespoke design will be considered for particularly prominent parapets.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 53.

The need for permanent access systems, railings and other secondary structures attached to buildings will be minimised and, where visible from public viewpoints, will maintain a coordinated approach, where reasonably practicable.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 60.

All materials will be specified in accordance with the operational and performance requirements for the structure and its constituent components.

Figure 7.74: Ancillary buildings aerial overview including plant and storage facilities

7.25 Ancillary storage buildings function

7.25.1 Chemicals storage (49)

7.25.2 The chemical products storage would provide a store for processing chemicals used within the plant, it is laid out with a number of storage areas and a central distribution bay.

7.25.3 Garage for handling facilities (50)

7.25.4 Fenced compound used for the garaging of handling equipment and vehicles to be used throughout the operational period of the Sizewell C station.

7.25.5 Oil and grease storage (51)

7.25.6 The building would be used for the storage of oils, greases and solvents used to maintain plant and equipment across the power station. The building includes a delivery bay, storage areas and an equipment store to allow the safe receipt and onward distribution of inventory.

7.25.7 Contaminated tools store (52)

7.25.8 Fenced compound used to store ISO containers that house tools and equipment required during outage periods.

7.25.9 Warehouse (53)

7.25.10 The primary function of the warehouse facility is to support the operational logistics of the site and would be used as a warehouse and workshop facility throughout the life of the power station. The layout will include storage and workshop accommodation, office and welfare facilities. During operation the building's function would provide the office and welfare facilities for the staff using and working in the facility; provide secure storage for strategic spare parts and equipment and extra workshop facilities for use by staff and contractors. An overhead travelling crane is required over the warehouse storage area to load and unload materials and equipment from vehicles.

7.26 Ancillary storage buildings concept

7.26.1 The storage building group are non-habitable spaces, which are to be as simple in form and appearance as possible. They will have predominantly large openings for vehicle access, with associated delivery loading and turning space. Although the buildings will not be occupied, they will be in constant use, with access routes designed to accommodate HGVs and forklifts for on-site movements.

7.26.2 The majority of these facilities will provide level access to meet storage requirements but will not be subject to *'Part M'* Building Regulations.

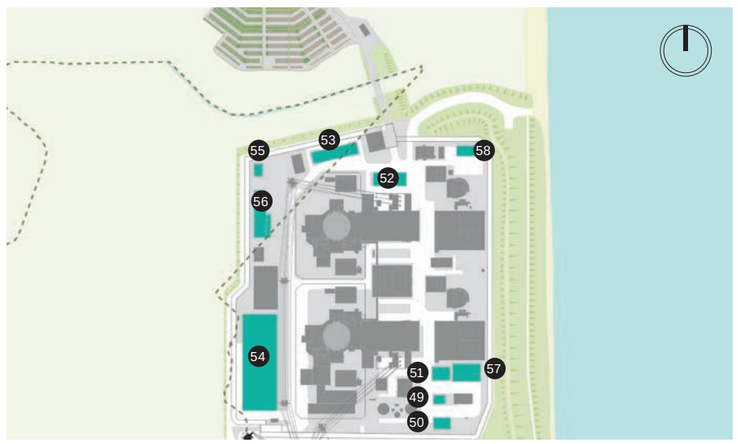


Figure 7.75: Ancillary storage buildings and fuel and waste management buildings

Figure 7.76: Illustrative elevation of ancillary storage buildings within the Sizewell site indicating a simple profile and appearance

7.27 Fuel and waste management buildings function

7.27.1 Interim spent fuel store (54)

7.27.2 The interim spent fuel store is a facility that will provide long-term safe and secure storage for spent fuel until it is removed from Sizewell C. The fuel store will be designed for a life of at least 100 years. This building will be located local to the intermediate level waste storage facility to facilitate security zoning during the operational life of Sizewell C and after decommissioning of all other buildings associated with Sizewell C takes place.

7.27.3 The proposed spent fuel assemblies will have a very similar concept to that of Sizewell B spent fuel store, which has now been operating since April 2016. The spent fuel is securely stored dry in concrete and steel canisters, this method will not require a gaseous stack for exhaust.

7.27.4 Equipment store for the interim spent fuel store (55)

7.27.5 The equipment store proposed would be required to store transportation and handling equipment used to transfer spent fuel to the storage building.

7.27.6 Intermediate level waste store (56)

7.27.7 This facility will be an ancillary logistics building, which provides storage of packaged intermediate level radioactive waste arising from the operation of the plant.

7.27.8 The baseline assumption is that intermediate level waste from Sizewell C which is held in the intermediate level waste store and is removed from site during the decommissioning phase, transferred to the UK geological disposal facility and that facility itself is demolished within 25 years of the end of reactor operations.

7.27.9 Waste to be disposed of as intermediate level waste will be conditioned into a passively safe state prior to transfer to the facility, through the use of specially formulated cement grouts or epoxy resin to immobilise radioactive material within suitable waste packages.

7.27.10 The assessment of the size of the intermediate level waste interim storage facility is based on the need to receive and store packages of intermediate level waste arising from the planned operational life of the two UK EPR™ reactor units on the Sizewell C site.

7.27.11 Conventional waste store and transit area for very low and low-level waste (57, 58)

7.27.12 These waste facilities would comprise hardstanding fenced compound areas, they have vehicular access and provide waste processing facilities on-site.

7.27.13 Conventional waste store and transit area for very-low and low-level waste (57, 58)

7.27.14 These waste facilities would comprise hardstanding fenced compound areas, they have vehicular access and provide waste processing facilities on-site.

7.28 Ancillary fuel and waste concept

7.28.1 These buildings are large, long lasting buildings which form a part of Sizewell C's legacy condition. They are non-habitable spaces, which are to be as simple in form and appearance as possible in order to have a minimal impact on their surrounding landscapes. They will have predominantly large openings for vehicle access, with associated delivery loading and turning space. The buildings will be accessed extensively during outage periods and intermittently at all other times, with access routes designed to accommodate HGVs and forklifts for on-site movements.

7.28.2 The majority of these facilities will provide level access to meet storage requirements but will not be subject to *'Part M' Building Regulations*. Their design life is expected to exceed the operational life of the power station of at least 100 years, during which time cladding will require replacement and maintenance and the buildings may require fabric refurbishment to extend this life span further.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 57.

The external treatment of the interim spent fuel store will seek to comprise a simple form with minimal external projections and a colour which responds to its setting as far as is reasonably practicable, taking into account the operational and nuclear safety requirements of the building. Reserved Matters applications will include details of the available colour options, including an explanation of how the proposed colour choice has responded to the building's setting. The design will have regard to the AONB Partnership 'Guidance on the selection and use of colour in development' and its immediate landscape context, acknowledge the long design life of the building in its material selection and design response, recognising its elevated status relative to other ancillary buildings.

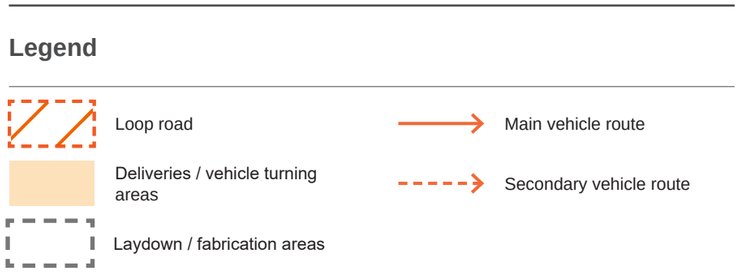


Figure 7.77: Interim spent fuel store east elevation, at 1:500

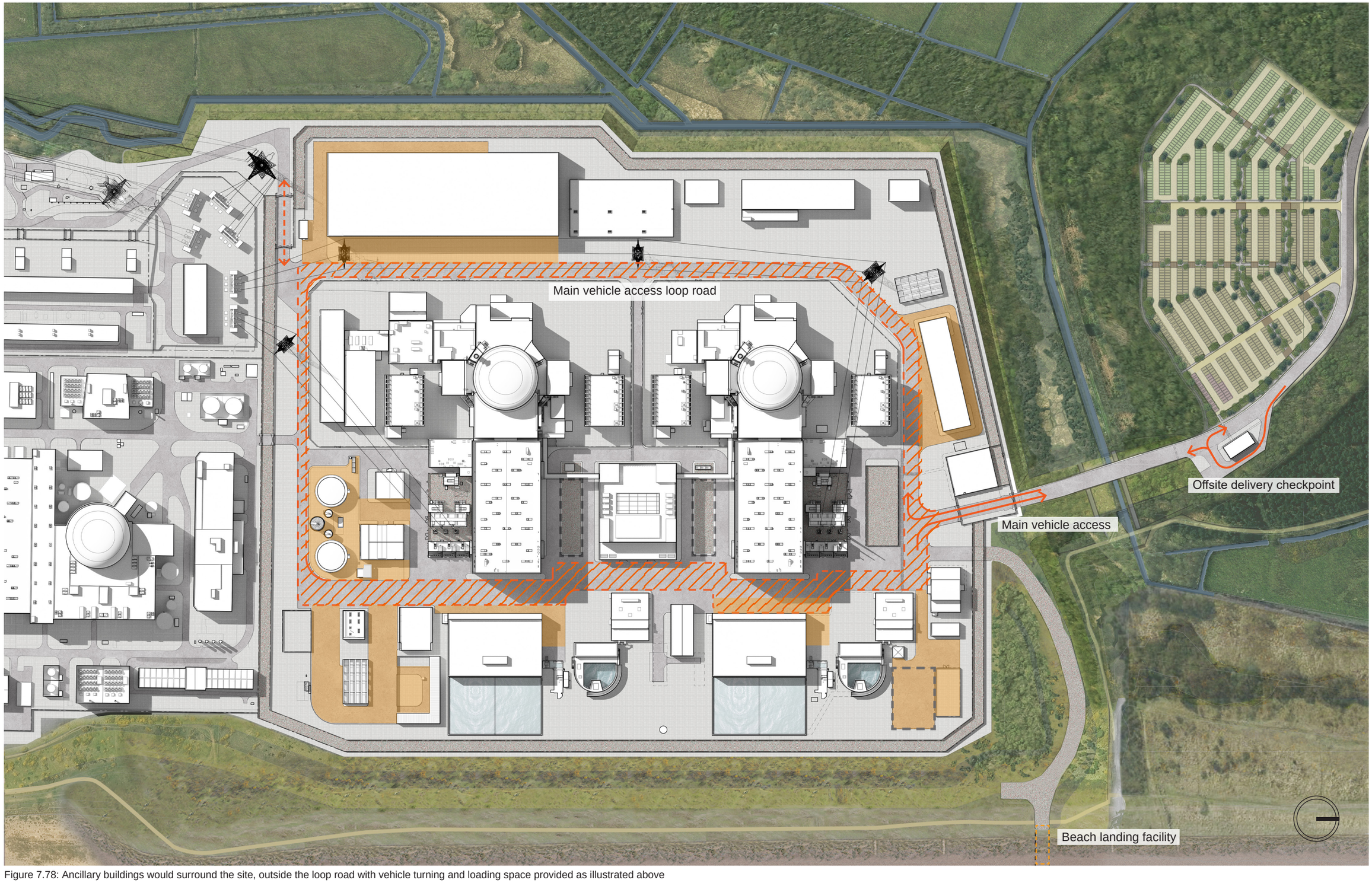


Figure 7.78: Ancillary buildings would surround the site, outside the loop road with vehicle turning and loading space provided as illustrated above

7:F Power infrastructure

"These structures could help in visually dwarfing the proposed buildings when viewed from near and far, and complement and contrast these buildings with their unique and distinctive forms."

CABE at Design Council (November 2019)

7.29 Power infrastructure overview

7.29.1 It will be necessary to provide an electrical connection between Sizewell C and a National Grid substation to export the electrical output of Sizewell C. The power infrastructure for Sizewell C would comprise a centralised National Grid substation located to the west of the site between Sizewell B and C; the realignment of the existing National Grid overhead line; and a four-pylon arrangement of above ground cabled infrastructure to the conventional islands.

7.29.2 At an early stage of the project we explored the potential opportunity to place power cables underground where this does not present significant safety and programme risks.

7.29.3 SZC Co. has considered alternative methods of achieving this connection, including via different overhead line and pylon options, and exploring the possibility of undergrounding the electricity connection.

7.29.4 During the early stages of consultation, it was considered that the electrical connections from Sizewell C could potentially be made via underground cables to the new substation. However, development of plans for the proposed development highlighted significant safety and programme risks associated with the construction and operation of an underground cable option. The main reasons for not proceeding with an undergrounding cable option is:

- Additional underground galleries would be required to contain the power export cables. Due to the large number of galleries and underground infrastructure already planned for the site, the options available to introduce additional galleries are extremely limited.
- Potential routes to unit 1 were considered, but none were found to be feasible within the constraints of the site. Deep excavation and dewatering would be required in part of the site where these activities are not permissible, due to the close proximity to the existing Sizewell B site and lack of sufficient space for construction activities.
- Potential routes to unit 2 were considered separately, but to create space to construct an additional gallery through the site would significantly delay the construction programme due to the impact on-site logistics and would require enlargement of the main platform to the north, leading to further loss of land within the Sizewell Marshes SSSI. Furthermore, the selection of an underground cable in place of an overhead line is not ALARP and nuclear safety could be adversely affected.
- In addition to the above, an overhead connection is a significantly more reliable, and cost-effective proposal, that would ultimately deliver better value to customers.

7.29.5 As a result, various options for the pylon arrangement was explored with the aim of reducing the visual impact of the pylons by finding opportunities to reduced their height and refine their location relative to each of the key viewpoints.

7.29.6 The four pylon option which forms part of the proposals represent the most appropriate approach for the electrical connection between Sizewell C and the National Grid substation.

7.29.7 The **Consultation Report** (Doc Ref. 5.1), submitted as part of the DCO submission, sets out the process by which the power export approach was reached. Full analysis of the alternatives is provided in **Appendix A**; Site Selection Report of the **Planning Statement** (Doc Ref. 8.4).

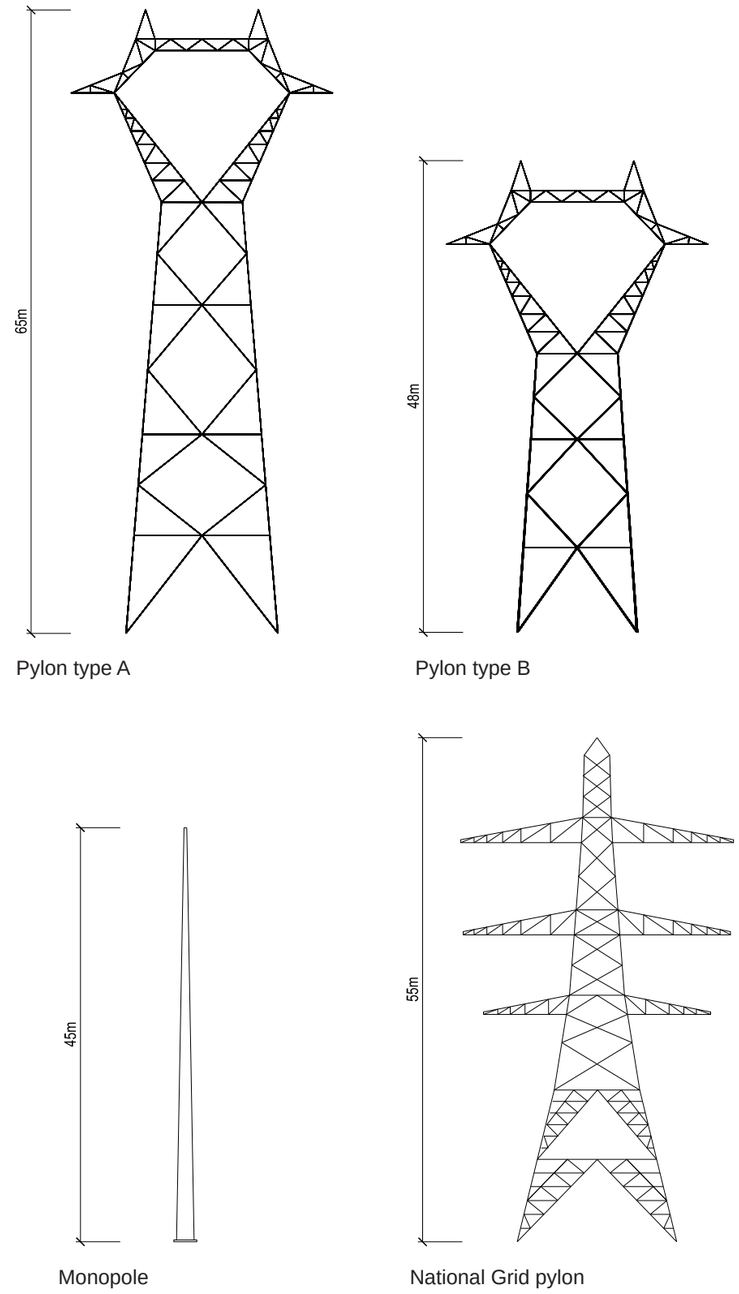


Figure 7.79: Pylon types to be employed at Sizewell C

7.30 Power infrastructure function

7.30.1 National Grid substation (59)

7.30.2 The proposed substation building would house gas insulated switchgear (GIS), which is designed to be insulated by a pressurised gas. It would be designed according to National Grid standards and requirements. The building form is driven by its function; however, it would be as simple, in terms of external detailing, as reasonably practicable to adhere to the Sizewell C design aesthetic.

7.30.3 National Grid overhead line realignment works

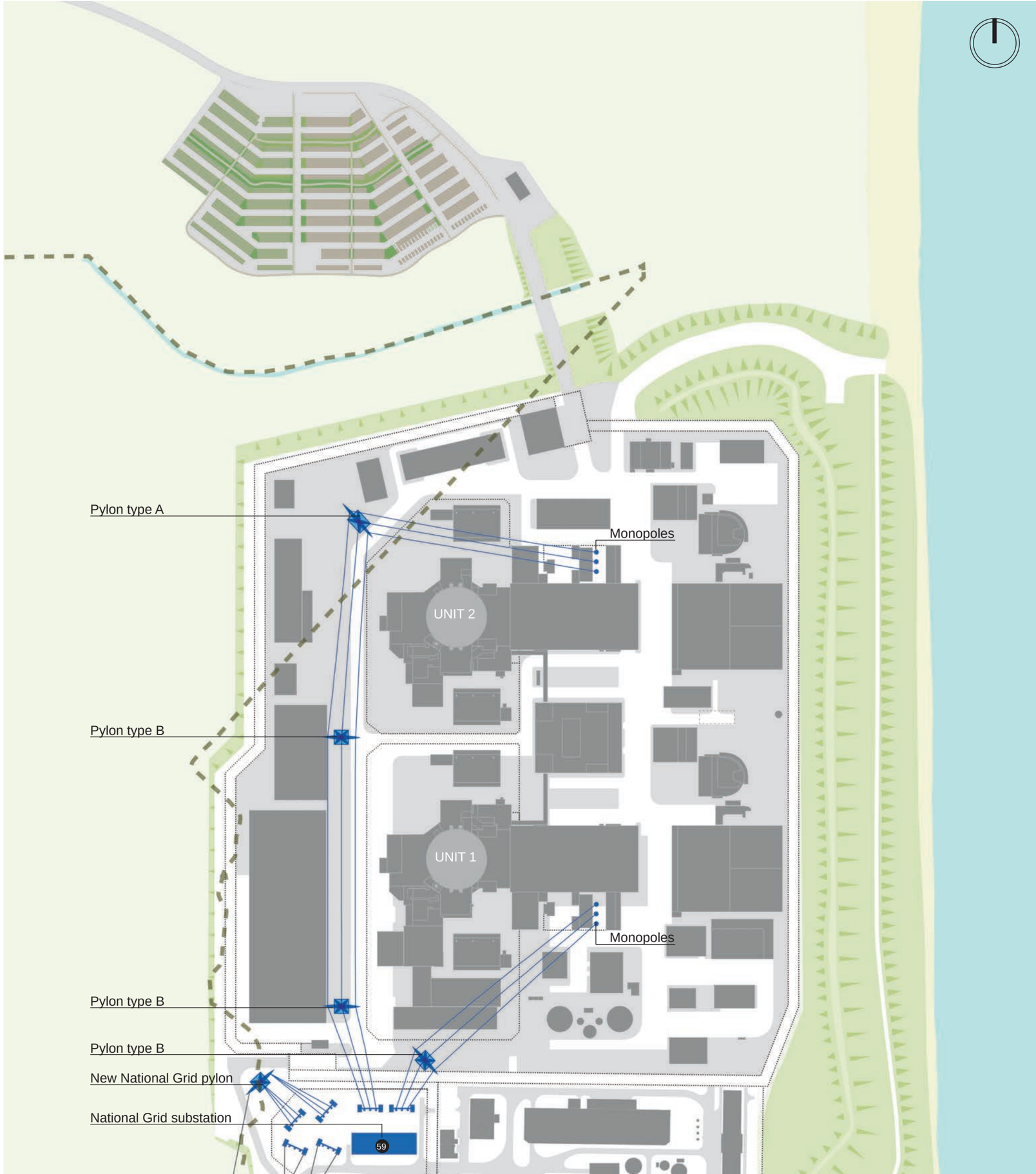
7.30.4 To facilitate connections to each of the four existing circuits on the National Grid 400kV overhead lines, modifications to the existing overhead lines will be required which will include a new pylon, removal of an existing pylon and the permanent realignment of a short section of the overhead line to connect to the new National Grid substation building

7.30.5 Sizewell C power infrastructure

7.30.6 Four pylons are required to cross the Sizewell C operational platform, three of which would be up to 48m in height and one of which would be up to 65m in height (the northern most pylon). This height variation is required to allow cables to pass above the height of fixed nuclear island buildings to the monopoles of the conventional island.

7.31 Power infrastructure concept

7.31.1 The concept for the power export connection for Sizewell C is to reduce the physical presence of the infrastructure, reducing its footprint and visual impact as far as reasonably practicable. A security fence will surround the National Grid substation and low-level gantries. Whilst the National Grid infrastructure would be continuously monitored remotely by National Grid Electricity Transmission, regular visual checks and inspections will be undertaken. It is anticipated that the National Grid infrastructure would not be permanently staffed.



Legend

- Sizewell C pylon
- Sizewell C monopole
- Peripheral buildings
- National Grid gantries

Figure 7.80: Sizewell pylon arrangement comprising four Sizewell C pylons

7:G Peripheral buildings within the Sizewell C estate

7.32 Peripheral buildings overview

7.32.1 The Sizewell C development has been consolidated as far as practicable to prevent the spread of facilities throughout the AONB. There are however several functions which are required to be outside the fence and others which have been relocated to nearby Leiston in order to reduce the physical built footprint of the Sizewell C operational development site.

7.32.2 These buildings would be smaller in principal and set in locally landscaped areas with an appropriate contextual response to mitigate adverse environmental impacts.

7.32.3 The peripheral buildings include:

- off-site delivery checkpoint
- ancillary substation

7.32.4 Please refer to **Appendix A** in relation to buildings within the accommodation campus and Upper Abbey Farm facilities.

7.33 Peripheral buildings function

7.33.1 Off-site delivery checkpoint (60)

7.33.2 Primary function of the off-site delivery check point building is to accept deliveries to site at a secure central location for sorting prior to onward site-wide distribution as well as used in heightened security situations. The building is positioned at the approach of the power station platform to enable deliveries to be made without entering the power station site. The building will be used to control the movement of all vehicles approaching and leaving the site. The function of the building would be to provide security control at the point of entry onto the site stopping and searching incoming vehicles.

7.33.3 It is anticipated that the building will be operational following completion of unit 1. The building will be open 7 days a per week 10 hours per day and 24 hours during outages and staffed accordingly.

7.33.4 Ancillary substation (63)

7.33.5 A new substation is proposed to provide an electrical supply during the construction phase, with associated cabling laid early in the construction programme. The substation is proposed to remain during the operational phase to complete the electrical connection between the Leiston substation at Sizewell Wents, the emergency equipment store and other ancillary buildings.

7.34 Peripheral buildings concept

7.34.1 These buildings would be relatively small in scale and would be integrated within their respective landscape settings. They would maintain a simple form and material expression for the facades in order to minimise their visual presence. They will feature windows doors and louvered panels as required to suit their internal arrangements.

7.34.2 The design life of the buildings is 70 years, during which period the cladding materials will require maintenance and they are envisaged to be replaced as required throughout the building's lifespan.

7.34.3 Several of the facilities would be surrounded by secure fencing accessed by dedicated roads from the main power station access road.

7.34.4 For further information relating to the buildings within the accommodation campus and located at Upper Abbey Farm, please refer to **Appendix A**.

DETAILED BUILT DEVELOPMENT PRINCIPLE BEYOND MAIN PLATFORM 65.

Peripheral buildings that fall outside of the main platform will be treated with an understated external aesthetic which serves to root them in their environment.

DETAILED BUILT DEVELOPMENT PRINCIPLE BEYOND MAIN PLATFORM 67.

The material palette for the peripheral buildings will make use of colour tones appropriate to the surrounding landscape and in keeping with the development proposals on the main platform.

Peripheral buildings within the SZC Co. estate

59 National Grid substation

60 Off-site delivery checkpoint

63 Ancillary substation

Legend

Sizewell C Co. estate boundary

SSSI boundary

Sizewell B relocated facilities

Peripheral buildings

Figure 7.81: Operational layout of buildings within the Sizewell C Co. estate (SZB relocated facilities Option 2 layout)

7:H Sizewell B relocated facilities

7.35 Relocated facilities overview

7.35.1 A study was undertaken to review and relocate Sizewell B facilities which are currently located within the boundary of the proposed Sizewell C operational site. **Section 6.10** of this statement indicates the platform constraints and the sets out the individual facilities to be relocated. The proposed new buildings have been developed in order to reduce the built footprint of those facilities being replaced by:

- co-locating or combining compatible uses wherever possible;
- relocating facilities to within the Sizewell B site as far as practicable;
- potential re-use of Sizewell A power station land; and,
- locating facilities in close proximity to the Sizewell B power station site.

7.35.2 The following pages provide an overview of the proposals for the affected Sizewell B facilities.

DETAILED BUILT DEVELOPMENT PRINCIPLE WITHIN MAIN PLATFORM 45.

The influence of the future form and appearance of Sizewell A will be considered in detailed designs, as far as reasonably practicable.

7.36 Sizewell B Relocated facilities - Two Options function

7.36.1 As part of SZC Co.'s commitment to continue to engage with stakeholders and explore the possibility for re-using previously developed land within the existing Sizewell power station complex, an area of land within the Sizewell A complex has become potentially available for use by the Sizewell B relocated facilities project, subject to the completion of a land agreement. In addition, following further design development, the layout of the relocated facilities has been revised to facilitate easier and more efficient construction. As a result, two options have been identified for the delivery of the Sizewell B relocated facilities project.

7.36.2 **Option 1** - With the provision of the additional area of Sizewell A land, the proposals would include:

- **Removal of the replacement Sizewell B outage car park from Pillbox Field**. The outage car park would be relocated from Pillbox Field to the existing Sizewell B west car park, there would also be no need for the demolition of Rosery Cottages garage or the connection for pedestrians between Pillbox Field and the Coronation Wood development area. Therefore, only mitigation planting would be proposed in Pillbox Field.
- **Relocation of the administration building**. Originally proposed with welfare facilities within the Sizewell B power station perimeter, this building would be moved to the Coronation Wood development area to facilitate easier construction. The welfare facilities, along with replacement storage and refurbished canteen, would still be located within the Sizewell B station perimeter.
- **Design of the training centre**. The width of the building would be increased and the height reduced from three storeys to two storeys to reduce the visual impact of the building.
- Optimisation of the Coronation Wood development area, as identified on **Volume 2**, **Figure 2.2.9** of the **ES Addendum**:
  - the laydown area would be moved to the Sizewell A land;
  - changes would be made to the arrangement/ location of replacement operational car parking; and
  - the visitor centre would be relocated to the southern part of the Coronation Wood development area.
- **Redesign of the landscaping scheme on Pillbox Field**. This would provide ecological enhancement and mitigation planting for trees lost from Coronation Wood. The redesigned landscaping scheme is illustrated on **Figure 8.30.**

7.36.3 **Option 2** - As the provision of the additional Sizewell A land is subject to the completion of a land agreement, the original proposal would remain part of the Application. However, SZC Co. has continued to review the scheme in this scenario and proposes the following amendments:

- **Relocation of the administration building**: Originally proposed with welfare facilities within the Sizewell B power station perimeter, this building would be moved to the Coronation Wood development area, to the north of the training building, to facilitate easier construction. The welfare facilities, along with replacement storage and refurbished canteen, would still be located within the Sizewell B station perimeter.
- **Design of the training centre**: The width of the building would be increased and height reduced from three storeys to two storeys to reduce the visual impact of the building.
- Optimisation of the Coronation Wood development area:
  - relocation of the visitor centre to the southern part of the Coronation Wood development area; and
  - utilisation of the remaining central area between the proposed buildings, within the Coronation Wood development area for the outage laydown.
- Pillbox Field would continue to include the proposed outage car park in this option.

Sizewell B relocated facilities

64 Sizewell B outage store

65 Sizewell B laydown area

66 Sizewell B training centre

67 Sizewell B visitor centre

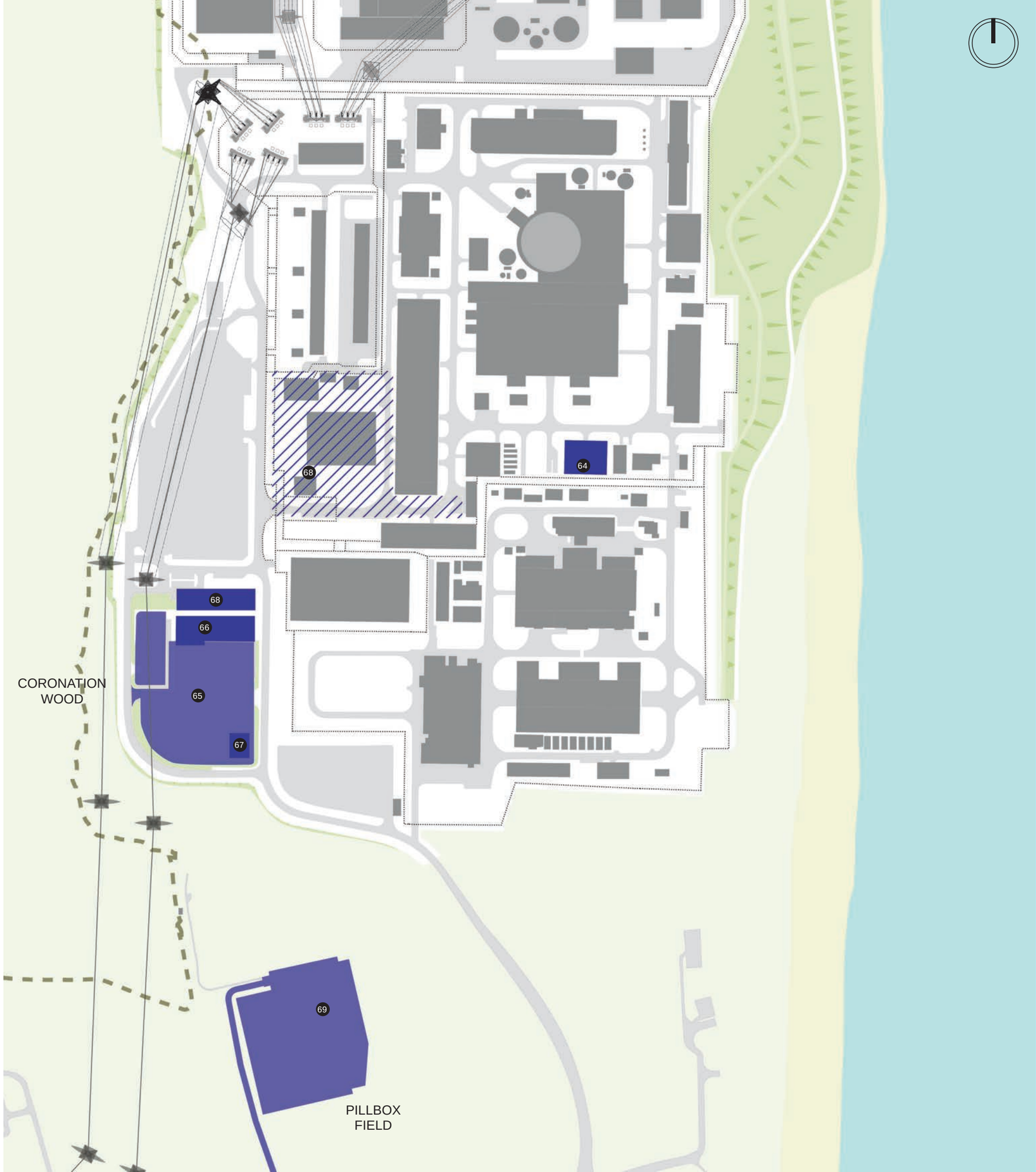
68 Sizewell B administration buildings

69 Sizewell B outage car park

Legend

- Sizewell B relocated facilities
- Sizewell B relocated hard standing
- Sizewell B zone for relocated administration buildings
- Sea defences and platform bank

Figure 7.82: Sizewell B relocated facilities operational layout (SZB relocated facilities Option 2 layout)



7.37 Relocated facilities function

7.37.1 Outage store (64)

7.37.2 The proposed outage store is within the Sizewell B power station security perimeter, directly opposite the existing turbine hall. It will provide a replacement for the existing outage store, which houses general and specialist plant, equipment and materials that are used during station outages. Additionally, office space would be provided for staff to carry out their work both during and outside of outages.

7.37.3 The items required for storage in this facility range in size and in some instances are quite large (such as ISO inter modal containers), which necessitates the provision of overhead cranes to handle these items.

7.37.4 The assumed average occupancy for the proposed outage store would be 4 people, with a peak occupancy of 20 people during outage periods. It would be open 7 days a week, with peak usage during outages, and the building design life would be 50 years. This is based on 40 years of operation and up to 10 years for decommissioning, with appropriate maintenance activities.

7.37.5 Laydown area (65)

7.37.6 The laydown area would be located on Sizewell A land in Option 1 and for Option 2 is part of the Coronation Wood development, it is required to accommodate the transport, external storage and handling of dry goods including scaffolding, low-pressure cylinder hoods and transformers.

7.37.7 The principal period of activity in the proposed laydown area will be during plant outages or development/ construction projects. Occasional out-of-hours (including 24-hour) working will be required at certain times, principally during plant outages.

7.37.8 In summary the purpose of the proposed Laydown Area would be to facilitate:

- bulk material storage/ sorting;
- scaffold, transformer and spares laydown;
- turbine hood storage (outage only);
- fabrication, including temporary cover;
- mobile workshops (containerised units or similar);
- ISO intermodal storage containers (limit 6m stacked);
- temporary accommodation/office (limit 6m-stacked);
- skips non-contaminated construction waste; and
- plant vehicles usage, storage (forklift, telehandler, mobile crane, tractor).

7.37.9 During normal operation the area would be used flexibly for maintenance and storage as required.

7.37.10 Staff numbers will temporarily increase dependent on tasks required during outages.

7.37.11 Sizewell B training centre (66)

7.37.12 The Sizewell B training centre would be located outside the Sizewell B perimeter along the entrance route into the power station complex as it is a building that needs to be readily accessible by its intended users.

7.37.13 The proposed training centre would be located in the north-east corner of the Coronation Wood development area for both options, south of the proposed administration building.

7.37.14 It will be the main facility where Sizewell B power station employees and contracting staff receive training/inductions on numerous site-related activities. The proposed building will accommodate a diverse range of facilities including training rooms, cellular and open plan offices, staff and student facilities including locker and mess facilities, workshops, specialist training rooms and their associated facilities.

7.37.15 The assumed average occupancy for the proposed training centre would be 150 people, with a peak occupancy of 350 people (in the lead up to and during outages).

7.37.16 The building will be open 7 days a week 07:00-19:00 hour on regular days and 24 hours during outage periods, and when otherwise required. The building design life for the proposed training centre would be 50 years. This is based on 40 years of station operation and up to 10 years for decommissioning, with appropriate maintenance activities.

7.37.17 The proposed training centre would provide a like-for-like replacement of the existing Sizewell B power station training facilities.

7.37.18 The buildings linear form responds to the Coronation Wood development area constraints as well as its relationship with the proposed visitor centre. It will be arranged over three storeys in keeping with the height of the proposed visitor centre.

7.37.19 The main entrance and service access for the proposed training centre would be to the north of the building. The building access would be positioned on this façade for a number of reasons:

- the existing access road to the north would provide service vehicle access to the building;
- the main pedestrian route to the building from Sizewell B power station security perimeter is from the north;
- the proposed Sizewell visitor centre would be located to the north of the training centre; and
- the proposed replacement car park to the west would provide car parking for the training centre. The path from this car park connects with the main pedestrian route from Sizewell B power station security perimeter.

7.37.20 The proposed massing of the building relates directly to the function of the different spaces required. There would be two types of contrasting spaces required within the building; training/office space and specialist training rooms/workshop space. Each of these spaces requires varying levels of security and a different internal environment. The main vertical circulation core and the three levels would be used to separate these functions enabling different security control measures and façade treatments.

7.37.21 Sizewell B visitor centre (67)

7.37.22 The existing visitor centre will be replaced with a permanent, modern educational facility for visitors, including school groups and will be the public face of Sizewell B power station. It will be designed flexibly for multiple user groups and events during the construction of the proposed Sizewell C power station.

7.37.23 The proposed visitor centre will accommodate an exhibition space; auditorium; classrooms for school parties; media centre; refreshment area; office and associated conference room and an external viewing area.

7.37.24 The occupancy of the centre will vary, with a mix of EDF Energy staff and visitors, with a total maximum occupancy of 135 people per day. Groups will predominantly pre-book to visit, however the facility will also be open to walk-in visitors.

7.37.25 The proposed visitor centre will typically be open six days a week 09:00-16:00 Monday to Saturday. Opening could be extended beyond these hours for specific events.

7.37.26 The maximum height parameter of the proposed visitor centre will be 20m. The overall height is greater than the height of the neighbouring proposed training centre and less than the existing Sizewell B power station dry fuel store.

7.37.27 The building entrance is likely to be situated to the west of the building which will make use of the existing levels. This will also provide a relatively private and protected area for visitors to arrive.

7.37.28 The proposed visitor centre will be located in the south-east corner of the Coronation Wood development area as part of the Option 1 layout. In this scenario, a replacement car park is proposed to the south of the proposed training centre, however in the option 2 layout the laydown area is proposed south of the proposed training centre.

7.37.29 The design of the proposed visitor centre will include envelope materials similar to the adjacent proposed training centre but will articulate these differently to reflect the public facing aspect of the function and location.

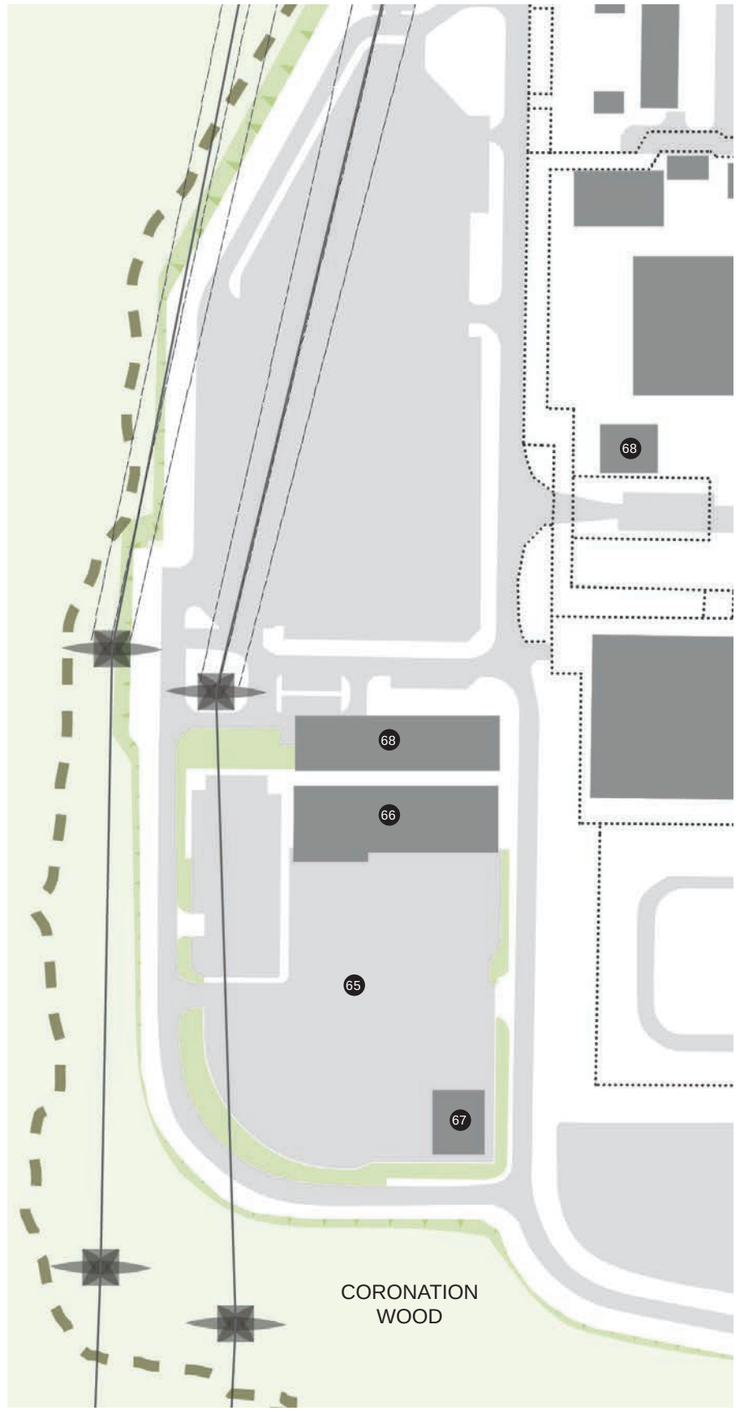


Figure 7.83: Coronation Wood site for Sizewell B relocated facilities (SZB relocated facilities Option 2 layout)

7.37.30 Sizewell B administration buildings (68)

7.37.31 This area is situated in close proximity to the main Sizewell B power station entrance. This buildings will include relocation of administration, storage, welfare and canteen facilities. Outline parameters are provided for this part of the relocated facilities proposals. The design of the proposed facilities will respond to the functional requirements and consider the extent of the existing facilities currently located within the immediate area.

7.37.32 The facilities will provide office accommodation for operations and outage staff and associated canteen facility; general storage; a civils store and workshop; locker and changing facilities; and a front of house for the staff and visitors to the Sizewell B power station.

7.37.33 Outage car park (69)

7.37.34 Pillbox Field comprises former arable farmland that has been allowed to revert to grassland. It is defined to the north and east by woodland/ scrub, to the south by the Sizewell Gap road and to the west by Sandy Lane, a bridleway which runs from Sizewell Gap heading north and then west until it intersects Lover's Lane.

7.37.35 As part of Option 2, the proposal is for a 576 space car park for use during outage periods (which operates in a 24/7 shift pattern), hence, there would be two peak points of traffic movement per day during outages. Outside of outages there will be no planned regular use.

7.37.36 It is proposed to locate an outage car park in the north-west corner of Pillbox Field.

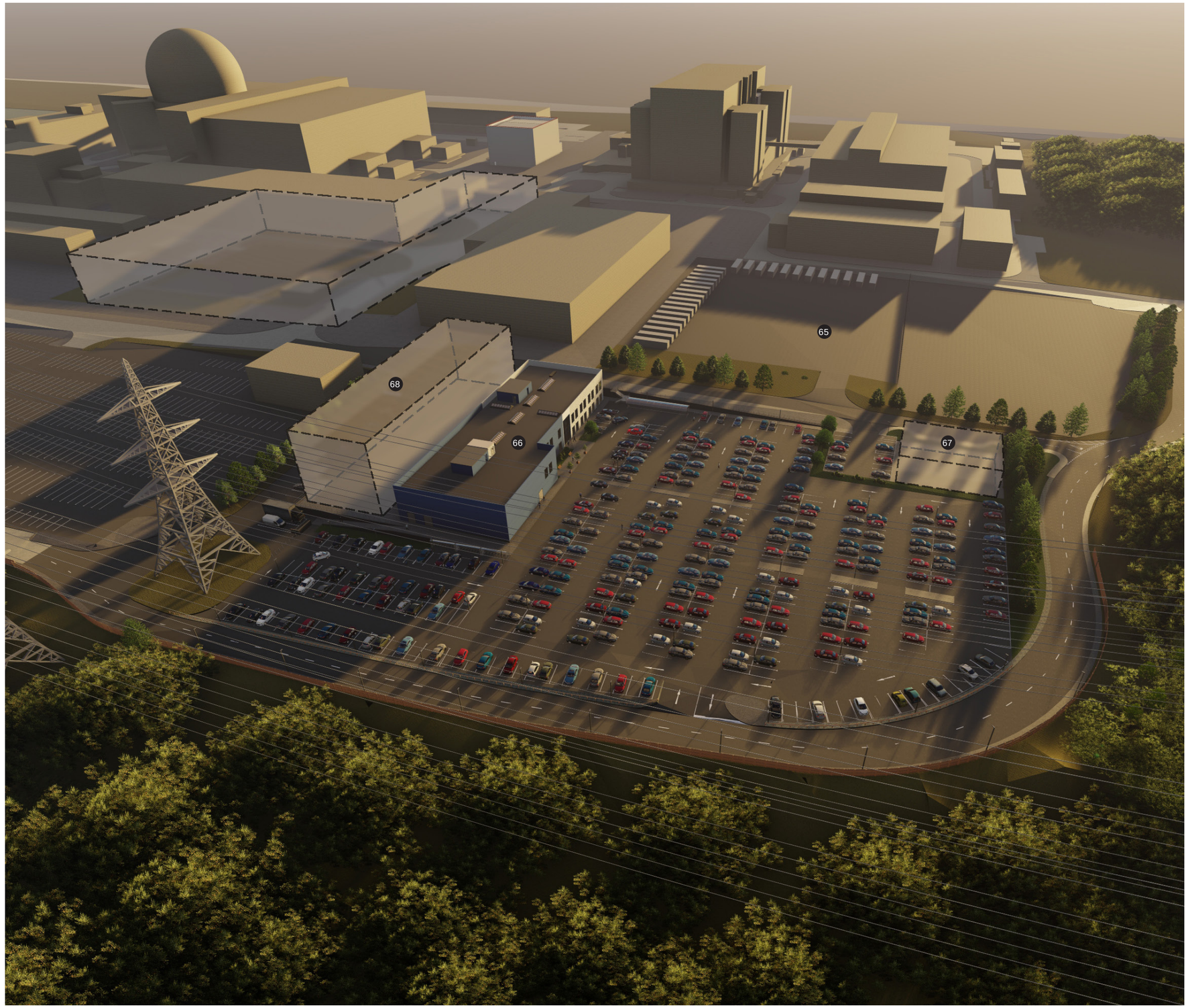
7.37.37 The operational elements are underpinned by the illustrative landscape masterplan which sets out the integration of built elements within the receiving landscape.

7.38 Relocated facilities concept

7.38.1 A separate planning application was submitted to ESC under the Town and Country Planning Act 1990 in November 2020, reflecting the revised Option 1 approach to relocating certain Sizewell B facilities. As per the previous scheme, SZC Co. propose that these proposals would also feature in this Application.

7.38.2 These facilities each have specific requirements which have been detailed and consented by East Suffolk Council within the recent planning permission Ref No. DC/20/4646/FUL, dated 18th February 2021. The design life for the buildings would be 50 years in accordance with Sizewell B's operational life and decommissioning strategy.

7.38.3 The maximum height parameter for the SZB relocated facilities buildings would be 20m and their forms each relate to their respective sites; maximising available footprints within the existing operational power station and taking a linear form to respond to the Coronation Wood site.



Sizewell B relocated facilities

65 Sizewell B laydown area

66 Sizewell B training centre

67 Sizewell B visitor centre

68 Sizewell B administration buildings

Figure 7.84: Illustrative view of Sizewell B relocated facilities
(SZB relocated facilities Option 1 layout)

7:I Operational Lighting

7.39 Operational Phase Lighting

7.39.1 Lighting Objectives

7.39.2 The range of mitigation measures are available to address the potential impact from the operational phase lighting. These range from equipment choice, use of site topography and competent design and site management. These measures are secured separately and are provided here for information purposes only.

7.39.3 As has been discussed earlier in this document, Sizewell C sits within the AONB and adjacent to SSSI sites and has been assessed as being with in an E1 environmental zone. In addition, there is an important bat assemblage on the site which uses the woodlands and hedgerows for foraging and commuting. Therefore, any lighting installed needs to be designed to have minimal impact on the surrounding environment.

7.39.4 The objectives of the operational section in **Volume 2, Chapter 2, Appendix 2B** of the **ES**, **Lighting Management Plan (LMP)** (Doc. Ref 10.17), which forms part of this DCO submission, as secured by DCO requirement, would be to achieve the following:

- comply with planning and legislative requirements;
- provide a safe working environment, meeting statutory requirements and standards;
- allow 24hr working (when required);
- provide site security lighting; and
- mitigate the impact of artificial lighting on the surrounding environment.

7.39.5 Areas to be lit and associated activities

7.39.6 For the operational phase, the zones detailed in **Table 7:I.1** have been identified along with the associated activity or task being undertaken as requiring lighting. For details of the zones please refer to the **Volume 2, Chapter 2, Appendix 2B** of the **ES, Lighting Management Plan (LMP)** (Doc. Ref 10.17).

Table 7:I.1: Operational Zones and activity / tasks being undertaken

ZONE	DESCRIPTION	ACTIVITY/TASK	COMMENTS
Zone A	Fences	Illumination of permanent security fences, allowing detection of perimeter activity.	Permanent ambient lighting will be required in these areas to specific security levels with a high uniformity. These areas will appear brighter than other areas of the site.
Zone B	Vehicle Search Areas	Illumination of security check points with additional task lighting to carry out security searches of vehicles entering or leaving the site.	Permanent ambient lighting will be required in these areas to specific security levels. There will be additional task lighting to allow vehicle inspections.
Zone C	Internal Roads & Hard standings	Lighting to all areas inside the security fence, necessary to operate the power station.	Permanent ambient lighting will be required in these areas. It should be noted that hard standings are likely to be used as laydown areas during power station maintenance outages. Although infrequent (typically 12-18 month intervals) additional temporary lighting may be provided during these times to increase illumination above the usual ambient levels.
Zone D	Car park	Permanent car park to the North of the power station.	Permanent ambient lighting will be required in these areas.
Zone E	BLF Access	The access road to the BLF will not normally be illuminated. On the occasions when the BLF is in use, lighting necessary for the safe movement of people and vehicles will be provided.	Task lighting will be provided when required and will be locally controlled.
Zone F	Roundabout	New permanent interfaces with the public highway.	The lighting in these areas will be based on highway design standards.
Zone G	Access Road	The access road to the power station, which should not be illuminated due to the sensitive nature of its location.	No Illumination
Zone H	External Roads	Roads outside the security fence where illumination is required for safety and security reasons.	The lighting in these areas will be based on highway design standards.
Zone J	Substations	Electricity substations outside the power station security fence.	Permanent ambient lighting will be required in these areas to provide security levels of illumination.

7.39.7 **Required Lighting Levels**

7.39.8 The lighting design criteria for each of the zones discussed above shall be as scheduled below.

7.39.9 Zone A Fences – Security fence lighting levels would need to comply with those set out by the SZC Co. Operational Security Team and as summarised in **Table 7:I.2**.

7.39.10 Zone B Vehicle Search Areas - The requirements for good security lighting is set out in the CIBSE Lighting Guide 1: The industrial Environment section 4.5. is summarised in **Table 7:I.3**.

Table 7:I.2: (NNB) Operational Security Team Fence Lighting Levels

LOCATION	MINIMUM AVERAGE LUX LEVEL NORMAL OPERATION	LIGHTING UNIFORMITY NORMAL OPERATION	MINIMUM POINT LUX LEVEL EMERGENCY OPERATION	LIGHTING UNIFORMITY EMERGENCY OPERATION
Perimeter fence – Sterile zone between fences	5	0.33	N/A	N/A
HSA fence – Clear zone either side of fence	5	0.33	N/A	N/A
Interim fences – as required	5	0.33	N/A	N/A

Table 7:I.3: Checkpoint & Gatehouse Lighting Levels Summary

AREA, TASK OR ACTIVITY	EM	UO	GRL	RA
Checkpoint	150	0.40	45	20
Gatehouses	200(dimmable)	0.40	16	20

7.39.11 Zones C, D, E, H & J Internal Roads & Hard standings, Car Park, BLF Access, External Roads and substations – The required lighting levels for these areas are set out in: - 7.73.2 BS EN 12464-2:2014 Lighting of Workplaces Part 2 Outdoor Work Places. Reference should be made to the specific tables listed within the document, but **Table 7:I.4** is a summary of the relevant levels required.

Table 7:I.4: BS EN 12464-2:2014 Lighting of Workplaces

AREA, TASK OR ACTIVITY	EM	UO	GRL	RA
Walking exclusively for pedestrians	5	0.25	50	20
Pedestrian movements within electrically safe areas	5	0.25	50	20
Internal Roads - Traffic areas for slowly moving vehicles (max. 10 km/h), e.g. bicycles, trucks and excavators	10	0.40	50	20
Medium traffic parking areas	10	0.25	50	20
Inspection areas	50	0.40	50	20
Servicing areas	100	0.40	45	40

7.39.12 The details of the principles for the operational lighting design are set out in **Volume 2, Appendix 2B** (Lighting Management Plan) of the **ES** (Doc. Ref 10.17) and are secured by a requirement included in Schedule 2 of the **draft DCO** (Doc Ref. 3.1(J)).

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Shingle Beach East of Secondary Sea Defence Bund

Chapter 8

Landscape Proposals

8.0 Landscape Proposals

"The design ambition for the landscape and its ecological stewardship is exemplary. The landscape character analysis across the masterplan and local area, and appreciation of the ecological merits and opportunities for enhancement is well demonstrated in the current proposal. This has resulted in a coherent design narrative and approach that factors in long-term landscape enhancements with short-term requirements for construction."

CABE at Design Council (November 2019)

8.1 Introduction

8.1.1 This chapter describes the illustrative Landscape Masterplan for the main development site and explains how the design has and will continue to evolve in response to the local landscape and built context of the site and its location within the Suffolk Coast and Heaths AONB and Suffolk Heritage Coast along with the design principles, technical and operational considerations, and stakeholder engagement.

8.1.2 The chapter describes the content and spatial extent of the landscape proposals and restoration works within the development site boundary and explains the approach to implementation, management and integration within the wider Estate and its immediate coastal and marine hinterland.

8.1.3 In describing the Landscape Masterplan, the chapter identifies the main components of the construction stage works which are inherited within the operational phase, with specific reference to coastal defence works, main site access, and the inheritance of surplus excavated materials.

8.1.4 Reference is also made to how access and recreational provision, including Public Rights of Way, are incorporated within the SZC Co. Estate which is secured by the **Estate Wide Management Plan** (Doc Ref. 10.15) (Requirement 5C) and the **Rights of Way and Access Strategy** (Doc Ref 10.26) (Requirement 6A).

8.1.5 Level 1 control documents will either be certified under the DCO at grant or annexed to the **Deed of Obligation** (DoO). All are secured and legally enforceable. Some Level 1 documents are compliance documents and must be complied with when certain activities are carried out. Other Level 1 documents are strategies or draft plans which set the boundaries for a subsequent Level 2 document which is required to be approved by a body or governance group. The obligations in the DCO and DoO set out the status of each Level 1 document.

8.1.6 This Chapter 8 is a Level 1 document as are Chapters 5, 7 (in part) and Table A.1. The delivery of the illustrative Landscape Masterplan and subsequent management and monitoring of the landscape restoration area following the construction period must be set out in a landscape and ecology scheme submitted to and approved by ESC pursuant to Requirement 14 of the **dDCO**. The illustrative Landscape Masterplan (see **Figure 8.3**) is not subject to approval through the DCO, however the landscape and ecology scheme must include details set out in the requirement and must be in general accordance with this Chapter 8 and Chapter 5. Further it must include a Landscape and Ecology Management Plan which must be in general accordance with the **outline Landscape and Ecology Management Plan (oLEMP)** (Doc Ref. 10.22).

8.1.7 The **oLEMP** provides clear objectives and general principles for the establishment and longer-term management of the landscape, and ecological mitigation proposals identified for the area within the Sizewell C application boundary, following construction of Sizewell C power station. The spatial extent of the **oLEMP** is the same as the area within the Landscape Masterplan and its aim is to complement the existing management aims of the Estate as a whole and to ensure newly created post-construction habitats are integrated within the surrounding landscape. Reference to the **oLEMP** (Doc. Ref. 8.2) is made throughout this chapter.

8.1.8 The **Estate Wide Management Plan** secured pursuant to Requirement 5C provides clear objectives and general principles for the establishment and longer-term management of the landscape of the wider Estate.

8.1.9 Reference should be made to **Chapter 10** of this statement and to the accompanying **Planning Statement** (Doc Ref. 8.4).

8.1.10 The structure of this chapter comprises:

- **Design Vision**
- **Landscape Masterplan**
  - Approach, extent and rationale
  - Inherited components from construction phase
- **Restoration Strategy**
  - Planting and habitat creation
  - Earthworks and soil strategy
  - Amenity and recreation strategy
- **Design Proposals**
  - Site access road and junction with B1121
  - Upper Abbey Farm
  - New sandlings landscape
  - Goose Hill
  - SSSI crossing
  - Northern Mound
  - BLF
  - Sea defences
  - LEEIE
  - Pillbox Field

8.2 Design Vision

8.2.1 The location of the Sizewell C site within the Suffolk Coast and Heaths AONB and in proximity to sensitive biodiversity, heritage and amenity assets and visitor destinations, has been a critical consideration from the outset of the planning and design of the proposed development. Several environmental disciplines have contributed to a detailed understanding of the site and its local and wider context and the opportunities that exist to mitigate the effects of the proposed development and create localised enhancements in an orchestrated way.

8.2.2 Within the framework of design principles, the illustrative Landscape Masterplan and architectural design response have been developed with a detailed understanding of the site and its surrounding landscape and seascape context and consultation with local stakeholders and reference to guidance published by SCC, Joint Local Authorities Group and Suffolk Coast and Heaths AONB.

8.2.3 Our vision for the landscape is founded on the concept of establishing the Suffolk Coast and Heaths AONB landscape in microcosm by creating a mosaic of some of its most valued landscapes such as extensive Suffolk Sandlings grasslands, areas of farmland, large scale forestry, coastal dunes and shingle ridges and the open sea as well as an appropriate landscape setting for the existing and proposed power station structures, that reflects the way that the existing Sizewell A and Sizewell B structures behave. The design also seeks to reflect a subtle transition from the organised farmland landscape to the west to the more open, expansive and natural coastline and adjacent seascape as shown in **Figure 8.1**.

8.2.4 Careful consideration has therefore been given to the organised arrangement of buildings on a common axis, and the role the landscape has in screening low level infrastructure and buildings in views from the coastline, offshore and locations inland with relatively benign structural masses visible above the datum formed by coastal sea defences and woodlands and forestry. Consideration has also been given to selecting materials and colours of several key structures to assist in their integration into the setting provided by the local landscape and existing power stations.

8.2.5 SZC Co. has sought to design a landscape that is deliverable and capable of thriving in challenging conditions; can be managed in a sustainable, non-intensive manner; and can be adapted over time to respond to changing circumstances, such as climate change and other natural, social and economic pressures.

8.2.6 Creating the right conditions for delivery will be key. Securing appropriate long-term management of the estate will be fundamental to achieving the vision in conjunction with good soil management and ground preparation; sourcing appropriate planting and seed stock; and achieving a balance between encouraging natural regeneration and direct planting.

8.2.7 Our vision for the future landscape is encapsulated in the illustrative Estate Operational Masterplan illustrated in **Figure 8.2.**

"The creation of a mosaic of heathland, scrub, woodland and wetland, managed by a variety of methods that reflect the variety of habitats, within and around the estate is recommended by this group as a means of helping to compensate and mitigate the impacts of the development and an opportunity to sustainably enhance landscape character and ecological networks with areas adjoining the estate. Such a heterogeneous and sustainable mosaic of habitats is appropriate in the context of the surrounding landscape and wildlife networks. This approach would also maximise the capacity of our wildlife and landscape to cope with climate change in line with the recommendations of the Lawton Report" (2010)[1]

[1] Suffolk Principles for the Management of the Sizewell Estate (Joint Local Authority Group, January 2014)

Figure 8.1: Character transition diagram

Figure 8.2: Estate Operational Masterplan (Indicative)
(SZB relocated facilities Option 2 layout)

8.3 Landscape Masterplan

8.3.1 The Landscape Masterplan illustrates the framework for landscape restoration in areas impacted by construction of the power station, broadly defined by the extents of the application site boundary (**Figure 8.3**). It is indicative and not for approval.

8.3.2 Land outside the development site boundary and within EDF Energy Nuclear Generation Limited and SZC Co's ownership (the 'Estate'), forms an important context for the illustrative Landscape Masterplan proposals and forms an integral part of the overall estate strategy. The wider estate areas are managed under the existing management regimes and include areas that have been subject to habitat enhancement as mitigation for Sizewell C; these are shown in the Landscape Masterplan Context plan (**Figure 8.4**). The existing management regimes have been reviewed and amended to accommodate the Sizewell C proposal and provide a framework for possible early preparatory works including forestry management and to support the transformation of the Estate presently dominated by intensive arable farmland and pine forest areas to a predominantly heathland and grassland landscape with mixed woodland.

8.3.3 The composite masterplan illustrated in **Figure 8.5** shows the combined Landscape Masterplan and its context for the whole of the Estate. The measures required to deliver this vision across the Estate are secured through the **Estate Wide Management Plan** (Doc Ref. 10.15) (Requirement 5C).

Legend

- Sizewell C Main Development Site Boundary
- Demarcation Line
- Hedgerows
- Mixed Woodland/Trees
- Dry Sandlings Grassland
- Semi-Improved Grassland
- Reinstated Arable Land
- Amenity Landscape
- Marsh, Fen and Reedbed
- Vegetated Dunes and Shingle Beach

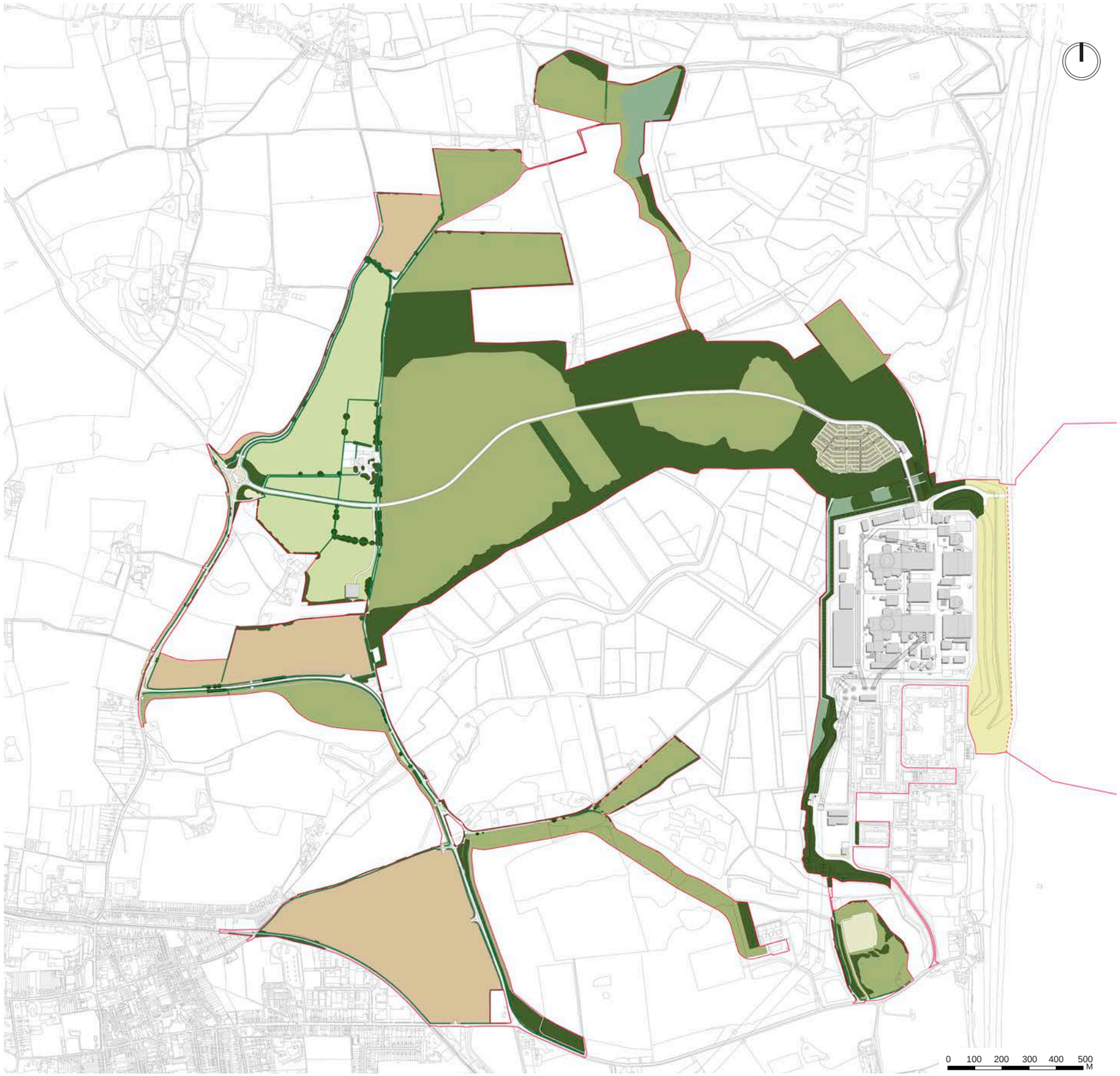

Figure 8.3: DCO Landscape Masterplan (Indicative)
(SZB relocated facilities Option 2 layout)

Figure 8.4: Landscape Masterplan Context
(SZB relocated facilities Option 2 layout)

Legend

- Sizewell C Main Development Site Boundary
- Demarcation Line
- Mixed Woodland/Trees
- Dry Sandlings Grassland
- Marsh, Fen and Reedbed

Legend

- Sizewell C Main Development Site Boundary
- Demarcation Line
- Hedgerows
- Mixed Woodland/Trees
- Dry Sandlings Grassland
- Semi-Improved Grassland
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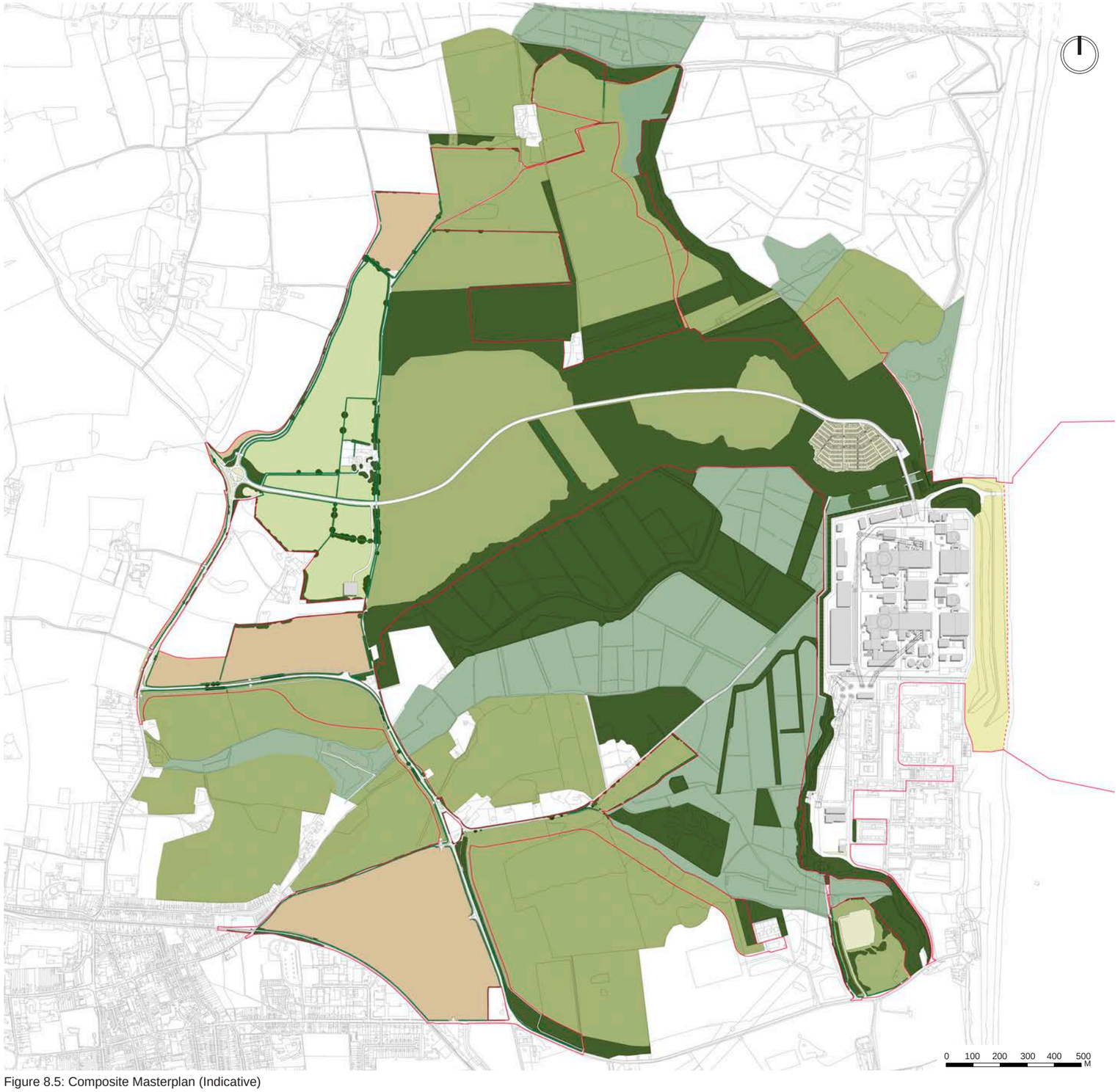


Figure 8.5: Composite Masterplan (Indicative)
(SZB relocated facilities Option 2 layout)

8.4 Inheritance from construction stage

8.4.1 The illustrative Landscape Masterplan has both informed and been shaped by inherited elements from the construction stage of the project. These elements include by example:

- the alignment and form of site access;
- the extent and form of sea defences and coastal grassland and dunes;
- the final profile of land to be restored following construction informed by the reuse of materials arising from construction; and
- the future maintenance operations to support the transformation of the landscape post construction.

8.4.2 **Figure 8.6** illustrates the key components of the Landscape Masterplan that are inherited from the construction stage. These are summarised in **Table 8.1**.

Table 8.1: Inheritance from Construction Masterplan

FEATURE	ADAPTATION FROM CONSTRUCTION TO OPERATIONAL PHASE
B1122 roundabout junction	• Loss of single spur to become a four-spur junction. • Planting around junction delivered during construction stage; infill planting delivered during restoration phase.
Diverted Eastbridge Road	• Adopted within operational phase on same alignment.
Site access road (from B1122 junction)	• Used as primary construction haul road; downgraded to a two-lane carriageway with a segregated route for cyclists and pedestrians but horizontal and vertical alignment retained.
SSSI crossing and access road	• SSSI crossing embankments planted during construction phase. • Haul road removed post construction and site access road retained. • Area of hardstanding from haul road removed and soft landscape treatment applied.
Northern Mound	• Structural form delivered early in construction programme; early planting established towards end of construction period. • Front face / structural form unchanged in operational phase. • Back slope raised and planted during operational phase.
Permanent BLF	• Delivered early in construction programme; retained in operational phase for infrequent use but with deck removed unless BLF is in use.
Sea defences	• Delivered in a phased manner with different design stage gates to meet construction requirement. • Substrate added and planting implemented during late stages of construction.
Spoil and soil surplus	• Spoil and soils stored in mounds during the construction period. • Retained on-site as part of operational phase to create new landform and / or to reinstate impacted areas to pre-construction topography / levels.
Wetland habitat	• Wet woodland and reedbed habitat creation delivered early in construction programme; retained in operational phase.
Bat barn	• Bat barn delivered early in construction programme; retained in operation phase.

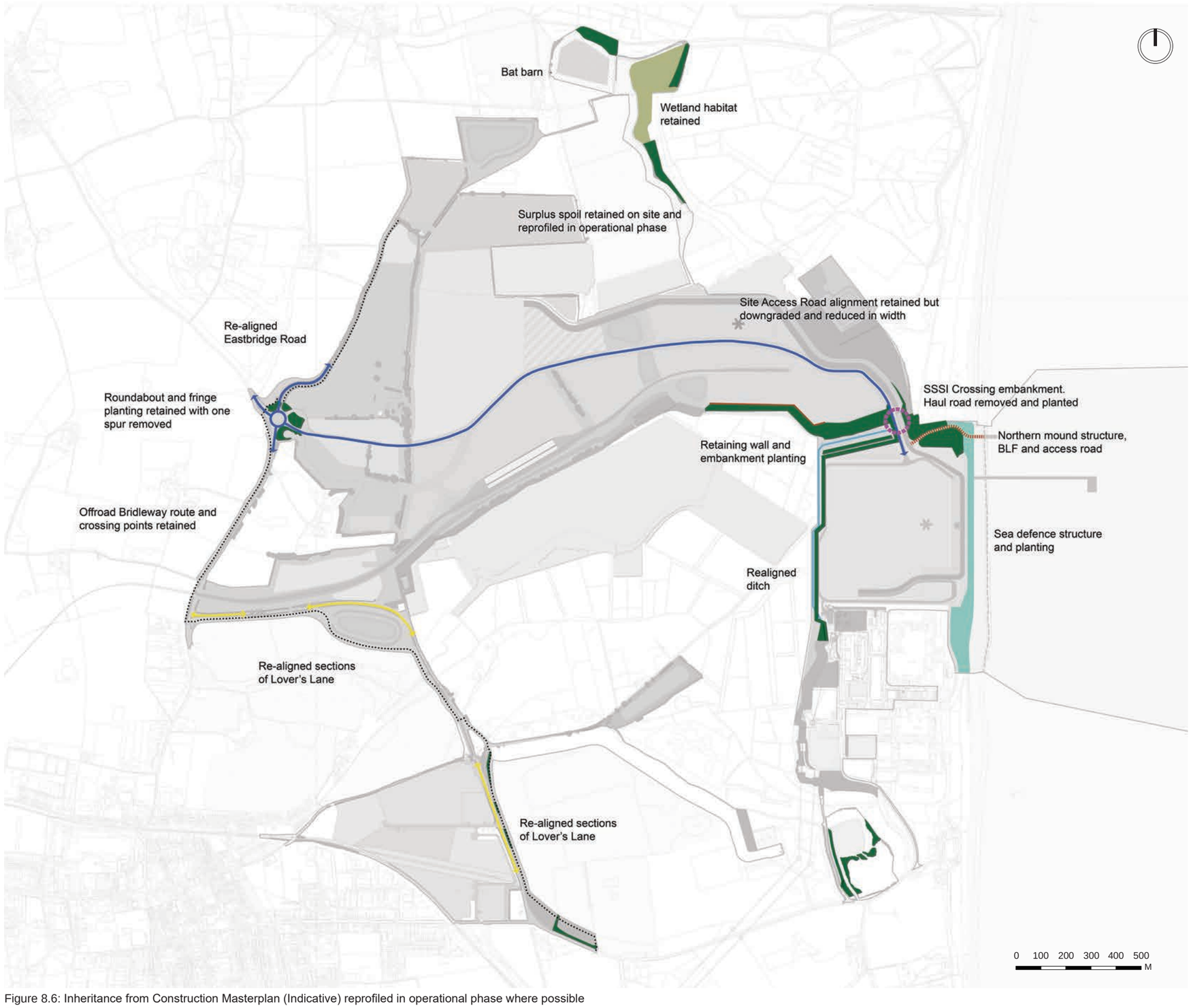


Figure 8.6: Inheritance from Construction Masterplan (Indicative) reprofiled in operational phase where possible (SZB relocated facilities Option 2 layout)

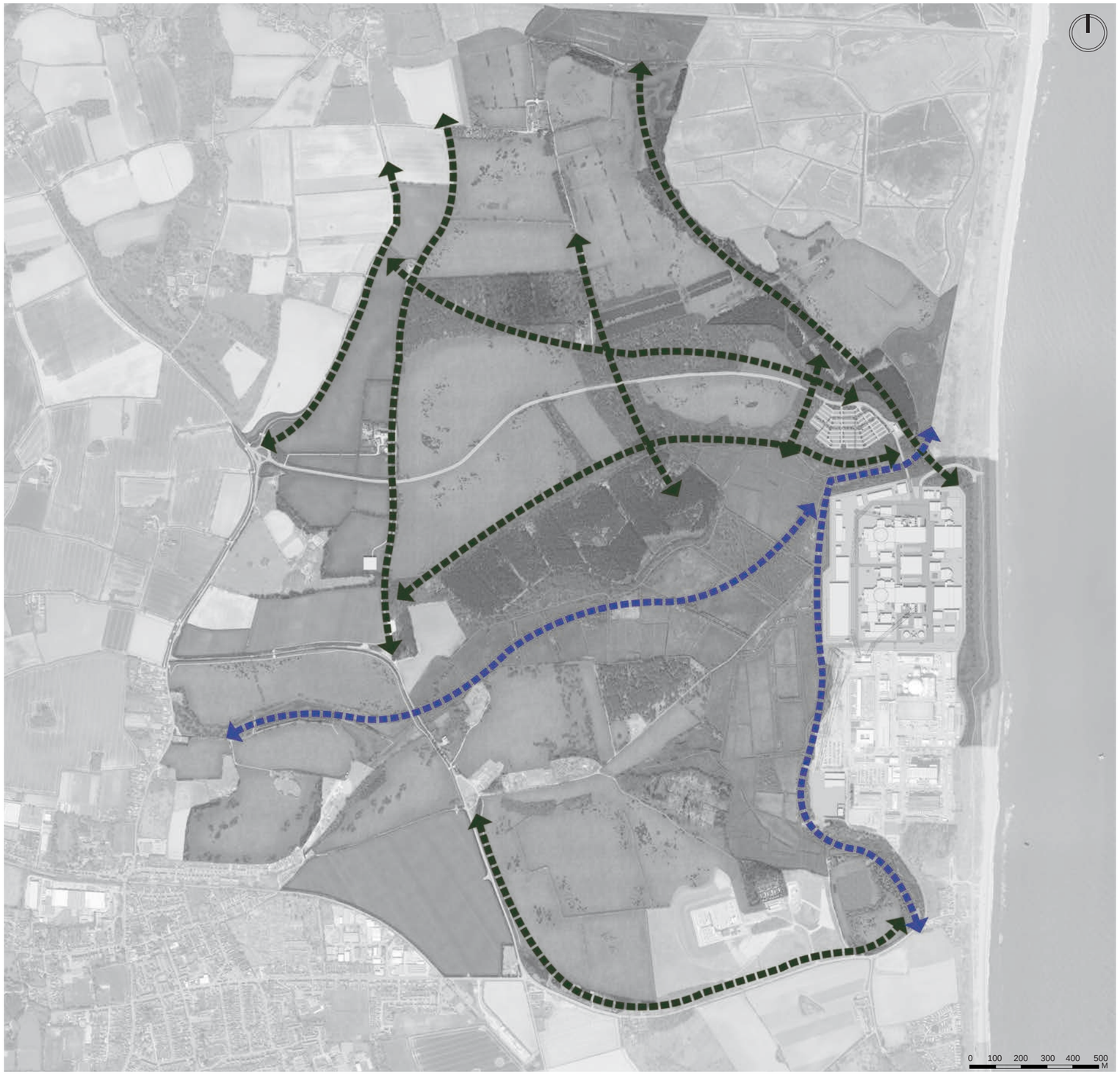


Figure 8.7: Key habitat corridors (Indicative)
(SZB relocated facilities Option 2 layout)

Legend

Hedgerow and Woodland

Wetland and Riparian

8.5 Planting and Habitat Creation

8.5.1 New areas of planting and habitat creation are proposed to areas within the DCO application boundary which will be restored following cessation and removal of the construction area including compounds, coastal defences, accommodation campus, temporary haul routes, borrow pits and water management zones.

8.5.2 The strategy is aligned with relevant design principles which are set out in **Chapter 6** and comprise:

OVERARCHING DESIGN PRINCIPLE 2.

Promote appropriate new landscape design (planting and landform) to mitigate the landscape and visual effects of the development.

OVERARCHING DESIGN PRINCIPLE 3.

Establish new planting and landform at the earliest practicable opportunity.

OVERARCHING DESIGN PRINCIPLE 9.

Seek to retain / provide areas of habitat connectivity and continuity as far as possible.

8.5.3 The Landscape Masterplan indicates the spatial arrangement of broad planting areas; These may comprise:

- Mixed Woodland.
- Hedgerows.
- Dry sandlings grassland.
- Semi-improved grassland.
- Reinstated arable land.
- Amenity planting.
- Wet grassland.
- Dune grassland / scrub.
- Shingle beach.

8.5.4 The **oLEMP** (Doc. Ref. 10.22) sets out at a high level how these planting / habitat typologies will be implemented, managed and monitored across the landscape retention area. The **EWMP** (Doc Ref. 10.15) sets out how this aligns with the management of the wider Estate.

8.5.5 The principle of delivering connected habitat is fundamental to the masterplan and recognises the degree of habitat severance which would be created during the construction of the project. **Figure 8.7** shows, in diagrammatic form, how reformed habitat corridors form part of the restoration proposal.

8.5.6 **Approach to planting:**

8.5.7 The approach to delivering a mature estate landscape will include initial direct planting and seeding to establish the landscape structure and land-cover supported by creating optimal soil conditions and implementing appropriate management regimes to encourage species colonisation and natural regeneration. This approach follows the principles of natural regeneration and is recognised as an important method of achieving sustainable landscapes and habitat.

8.5.8 Not all areas of proposed planting will be planted at the same time. The specific timing of planting is largely dependent on the construction phasing programme, with some areas likely to be restored in advance of others. Early planting either in advance of, or as part of, enabling works would be delivered to provide initial screening and integration of built features. Some advance planting has already been completed around the perimeter of the main development site, including tree / shrub planting at Red Rails and White Gates Fields and along the northern edge of Goose Hill. Planting to reinforce existing hedgerows has been completed south of Lower Abbey Farm and at Black Walks.

8.5.9 Selective indicative species lists are set out in **Tables 8.2 - 8.5** for illustrative purposes and will be refined at a later stage of design maturity and in support of the discharge of Requirements. Plant selection will be informed by a range of factors including (but not limited to) an understanding of soil conditions including volumes and quality of material; the impact of ground modelling on drainage, ground water, exposure; and the availability of planting stock / seed sources.

8.5.10 The general approach which will inform the specification and implementation of planting stock, as set out in the **oLEMP** (Doc Ref. 10.22) comprises:

- Plants of local provenance should be used where these are available (but noting potential for inclusion of stock from more southerly latitudes as part of a climate change resilience strategy – referred to below).
- Species mixes should replicate as far as practicable the make-up and pattern of planting typologies found within equivalent areas of the Estate and immediate hinterland.
- Species which maximise biodiversity and provide habitat for wildlife should be included within mixes (guided by local requirements and objectives – e.g. local BAP / AONB management plan etc).
- Species should be resilient to climate change impacts and disease / pests as far as is practicable and foreseeable. Further research may be required but in general the following measures to consider should include (but are not limited to):
  - avoidance of specifying large numbers of a limited range of tree species, to minimise the spread and effect of disease;
  - select species which have a degree of drought tolerance;
  - consider procuring species from more southerly latitudes (within a range of say up to 1-5° south of the site);
  - avoid very shallow rooting trees which may be susceptible to windblow from unpredictable storm events; and,
  - Where practicable, natural regeneration rather than direct planting will be adopted to provide a more resilient stock (this would have reliance on both the soil preparation and management of planted / retained vegetation etc).
- Smaller tree sizes (at initial planting) will typically be used in favour of mature stock as they are likely to establish more quickly and have a lower demand on irrigation.

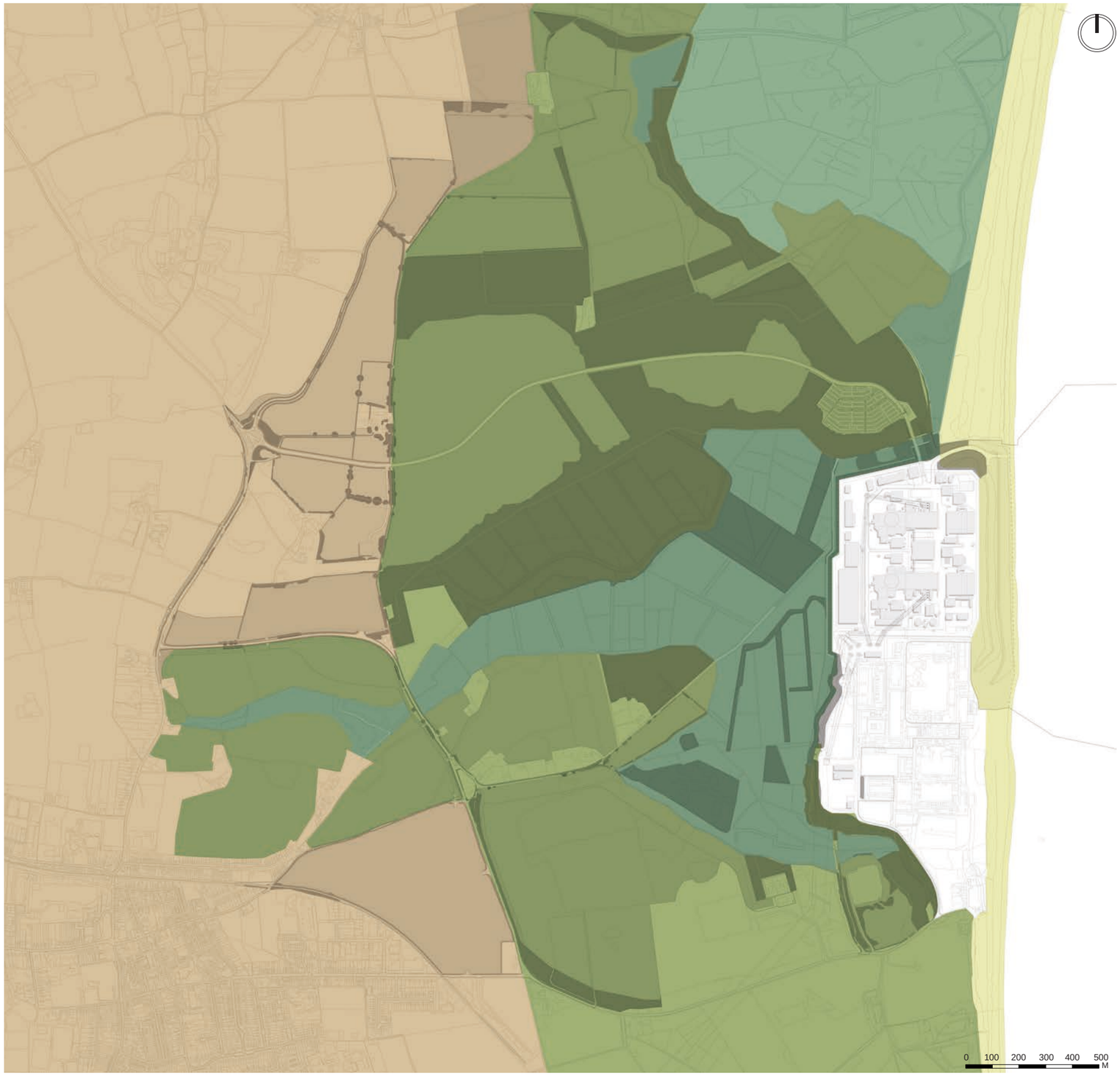
8.5.11 Planting Typologies

8.5.12 **Figure 8.8** sets out four broad character zones which are used to guide planting and habitat typologies. These character zones are organised in an east west alignment reflecting increasing proximity to the coast and comprise:

- Zone 1 Estate Sandlands: Farmlands.
- Zone 2 Estate Sandlands: Dry Sandlings Grasslands.
- Zone 3 Coastal Levels.
- Zone 4 Coastal Dunes and Shingle.

8.5.13 Within each of these character zones a range of typical planting typologies are proposed – such as woodland, scrub, grassland, hedgerows etc; these are accompanied by selective indicative species which are set out in **Tables 8.2 - 8.5**.

8.5.14 The establishment, management and future monitoring prescriptions for the planting typologies within each of these zones is set out in the accompanying **oLEMP** (Doc. Ref. 10.22) and the **EWMP** (Doc Ref. 10.15) sets out how the wider Estate will be managed.



Legend

- Zone 1: Estate Sandlands: Farmland
- Zone 2: Estate Sandlands: Dry Sandlings Grasslands
- Zone 3: Coastal Levels
- Zone 4: Coastal Dunes and Shingle

Figure 8.8: Planting character zones
(SZB relocated facilities Option 2 layout)

8.5.15 The following section provides a summary of these four broad planting zones:

8.5.16 **Zone 1 Estate Sandlands: Farmlands**

8.5.17 This zone includes agricultural land to the west of Bridleway 19 and west of Lover's Lane and comprises an enclosed pastoral landscape centred around Upper Abbey Farm and arable fields to be reinstated off Lover's Lane and at LEEIE.

Table 8.2: Zone 1 Estate Sandlands: Farmlands

OVERVIEW	SELECTIVE INDICATIVE SPECIES
Pastoral land Creating strong field boundaries through retention and enhancement of hedgerows and field boundary vegetation. Includes gapping up hedgerows where applicable. Establishment of appropriate improved pasture to support grazing	**Hedgerows including hedgerow trees:** • English Oak • Common Beech • Common Hazel • Holly • Wild cherry • Field Maple • Hawthorn • Blackthorn • Guelder rose • Spindle
Arable fields Retention and enhancement of hedgerow boundaries including gapping up as necessary Establishment of protected field margins (non-ploughed) for biodiversity gain	

Figure 8.9: Precedent images - estate sandlands farmlands

8.5.18 **Zone 2 Estate Sandlands: Dry Sandlings Grasslands**

8.5.19 This zone occupies a corridor of land between agricultural farmland to its west and coastline habitat to the east. The broad extent of land within the development site boundary comprises much of the temporary construction area used to construct Sizewell C. This land will be extensively remodelled using spoil and soils reclaimed during the construction phase (refer to earthworks strategy in **section 8.6**)

Table 8.3: Zone 2 Estate Sandlands: Dry Sandlings Grasslands

OVERVIEW	SELECTIVE INDICATIVE SPECIES
Establishment of structural blocks of mixed woodland to tie back into retained woodland at Kenton Hills, Ash Wood and Goose Hill. Establishment of mixed woodland edge planting to create a transition into more open grass / heathland and to provide lower level visual screening. Creation of acidic grassland mosaic with pockets of heathland scrub dispersed throughout. Enhancement of existing / retained hedgerows including gapping up where applicable. Strengthening woodland belts where retained and exposed.	**Mixed Woodland:** • English Oak • Sweet Chestnut • Common Beech • Common Hazel • Holly • Common Lime • Small-leaved Lime • Silver Birch • Wild cherry • Field Maple • Blackthorn • Hawthorn • Guelder rose • Scots Pine • Corsican Pine • Yew **Mixed Woodland Edge:** • Common Hazel • Holly • Silver Birch • Wild cherry • Field Maple • Blackthorn • Hawthorn • Guelder rose **Scattered Trees and Scrub:** • Silver Birch • Rowan • Common broom • Heather sp. • Dwarf gorse • Bilberry • Bog myrtle, • Wild thyme **Sandlings Grassland:** • Wavy hair grass • Bird's-foot trefoil • Purple moor-grass • Deer-grass • Brown beak-sedge • Meadow thistle • Meadowsweet • Devil's bit scabious • Cuckoo flower • Ragged Robin • Slender red fescue • Sheeps fescue • Chewings fescue • Crested dogstail • Sweet vernal grass • Common bent

Figure 8.10: Precedent images - sandlings grassland

8.5.20 Zone 3 Coastal Levels

8.5.21 The Coastal Levels zone comprises low lying wetland areas that include grazing marsh, wet woodland and reed beds. Within the development site boundary this character area extends along the western edge to the operational power station platform, the SSSI corridor to the north of the platform, and the flood mitigation and wetland habitat area to the north of the Application site boundary.

Table 8.4: Zone 3 Coastal Levels

OVERVIEW	SELECTIVE INDICATIVE SPECIES	
Replicate as far as practicable the wet woodland character adjacent to the operational power station platform within areas where standing water is anticipated. Establishment of open water channels and wet reedbeds within and alongside watercourse / drainage channels. Provision of a scrubby edge along the western platform edge to provide screening of perimeter fencing / activity.	**Wet Woodland:** • Crack Willow • Goat Willow • White Willow • Silver Birch • Downy Birch • Alder • Bird Cherry • English Oak • Black Poplar • Dogwood	**Reed bed / marginal fringes:** • Common reed • Flowering Rush • Marsh marigold • Yellow Flag Iris • Purple Loosestrife • Forget me not • Marsh mallow • Brooklime • Marsh cinquefoil

Figure 8.11: Precedent images - coastal levels

8.5.22 **Zone 4 Coastal Dunes and Shingle**

8.5.23 Within this zone, coastal woodland at the Northern Mound merges into dune heath and grassland with vegetated shingle habitats prevailing on the foreshore. The construction of new sea defences and introduction of substrates overlying the structural mounds are located in this zone.

Table 8.5: Zone 4 Coastal Dunes and Shingle

OVERVIEW	SELECTIVE INDICATIVE SPECIES	
Establishment of woodland and scrub planting on the re-profiled Northern Mound. Establishment of endemic coastal flora on the sea defences comprising dune heath and grassland species. Reinstatement of vegetated shingle where disturbed by construction activity.	**Mixed coastal woodland:** • Scots Pine • Corsican Pine • Monterey Pine • Birch • Sweet chestnut • Holm Oak • Blackthorn • Hawthorn **Dune heath:** • Sea buckthorn • Gorse • Sea holly • Sea campion	**Dune grassland:** • Marram grass • Sea rocket • Lyme grass • Sand couch • Sand sedge • Red fescue • Lady's bedstraw • Ribwort plantain • Bird's foot trefoil • White clover • Common sedge • Silver weed • Marsh pennywort • Yorkshire fog • Creeping bent • Glaucus sedge • Creeping buttercup **Vegetated shingle:** • Sea Pea • Sae Kale • Yellow horned poppy Sea Beet • Vipers bugloss • Sea bindweed • Biting stone crop

Figure 8.12: Precedent images - coastal dunes and shingle

8.6 Earthworks Strategy

8.6.1 Works to construct Sizewell C will result in a net surplus of excavated materials at the end of the construction programme. The end-use strategy for surplus spoil (including stripped topsoil and subsoil) is to re-distribute the majority of the material across the restored landscape rather than to transport it to other receptor sites.

8.6.2 Initial design work has considered the re-contouring of large tracts of land within the temporary construction area, drawing on an understanding of context particularly characteristics of more elevated landform in areas to the south at The Walks and north around Dunwich Heath / Westleton Walks. This early work is presented in **Figure 8.13** and would inform subsequent more in-depth studies which would consider inter alia material performance and constructability.

8.6.3 The interaction of substrate on overlying soils and how this will impact planting and seeding works and drainage is relevant to the landscape proposals; however, this will be set out in the landscape and ecology scheme submitted to ESC for approval pursuant to Requirement 14 of the **dDCO** (Doc Ref. 3.1(J)).

8.6.4 Further technical and operational details relating to materials management can be found in **Volume 2, Chapter 3, Appendix 3B** of the **ES** (Doc. Ref. 6.3).

8.6.5 Indicative Design Proposals

8.6.6 The majority of surplus materials are likely to be distributed within the area between Dunwich Forest to the north and Kenton Hills to the south, and the coastal fringes around Goose Hill in the east to Bridleway 19 in the west. Additional mass haul of materials are likely to be required to complete the non-structural component of the sea defences; to restore small land parcels to existing levels where disturbed during construction (notably at LEEIE and land to the immediate north of Lover's Lane); and, during the construction phase, to create soft embankment edges to retaining walls which are needed to establish the construction platform at Goose Hill. Further details on the construction boundary treatments can be found in **Volume 2, Appendix 3B** of the **ES** (Doc. Ref. 6.3).

8.6.7 The platforms created to deliver the construction works will establish the initial datum for earthworks (refer to **Construction Parameters Plan, Volume 2, Chapter 3 of the ES** (Doc. Ref. 6.3)). There are also a number of points which the new landform must tie back into, which include:

- vertical and horizontal alignment of the site access road level (inherited and downgraded from the construction haul road);
- edges of retained landscape, with sufficient offsets to protect rooting zones of boundary vegetation;
- the crossing point at the SSSI to the east; and
- Bridleway 19 to the west (retained during construction).

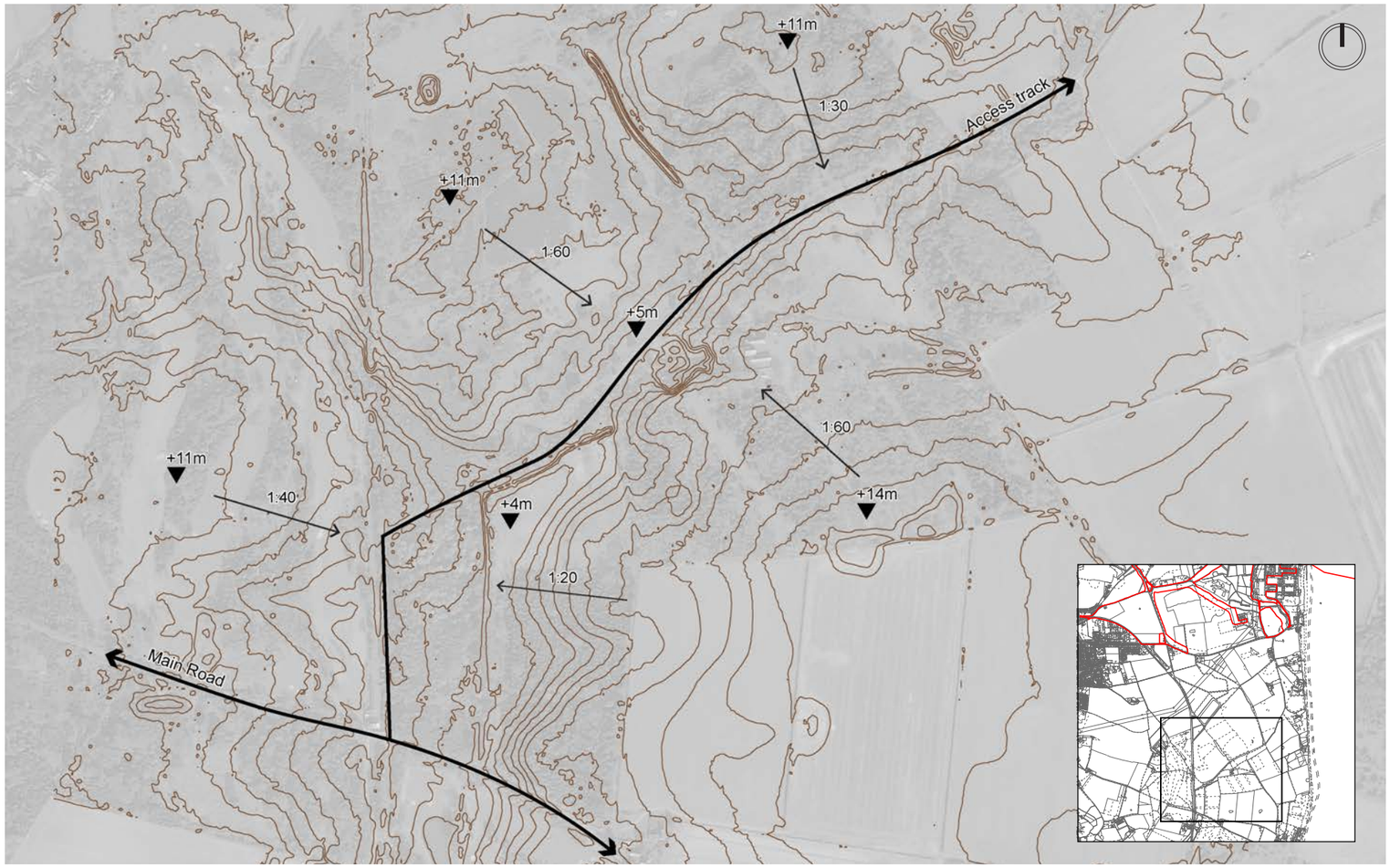


Figure 8.13: Landform study: The Walks

8.6.8 **Figure 8.14** shows the existing topography of the area, which is an important contextual driver, revealing a pattern of low-lying river valleys which fall out to the coast, running parallel to gently rising landform.

8.6.9 The restored land sits on rising land situated between the low-lying Sizewell Belts to the south and Minsmere Levels to the north rising locally to around 15m above sea level in the vicinity of Ash Wood. The principle of gently rising slopes with local undulations and discreet high points draws from local precedents and establishes the basis of the illustrative design for the restored site.

8.6.10 The proposed landform strategy (refer to **Figure 8.15**) shows how the spine road sits within a gently falling valley (west to east) with made ground rising gradually from the road before falling back to meet existing levels – initially creating two high points within an open sandlings grassland area west of Bridleway 19; and then, to the west, as a single extruded area of higher ground within an enclosed wooded context.

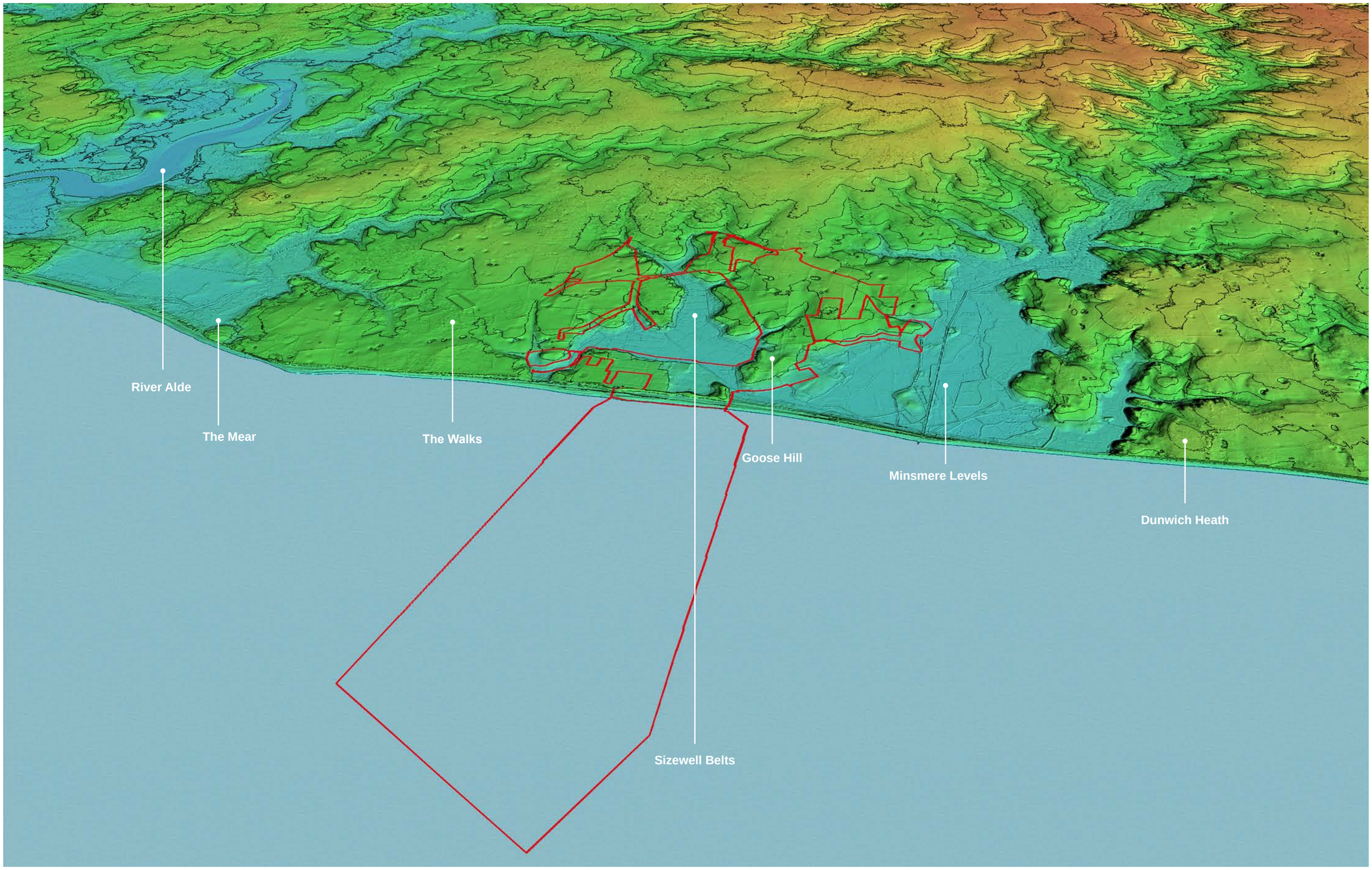


Figure 8.14: Existing topography

Legend

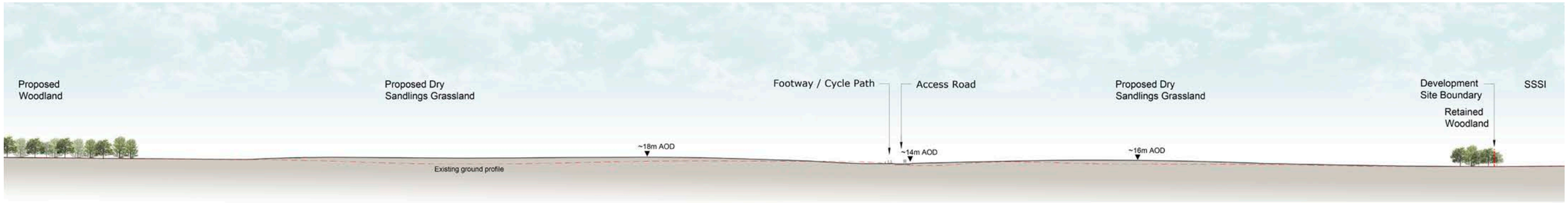
Existing 1m contour line (outside Development Site Boundary)

Proposed 1m contour line (inside Development Site Boundary)

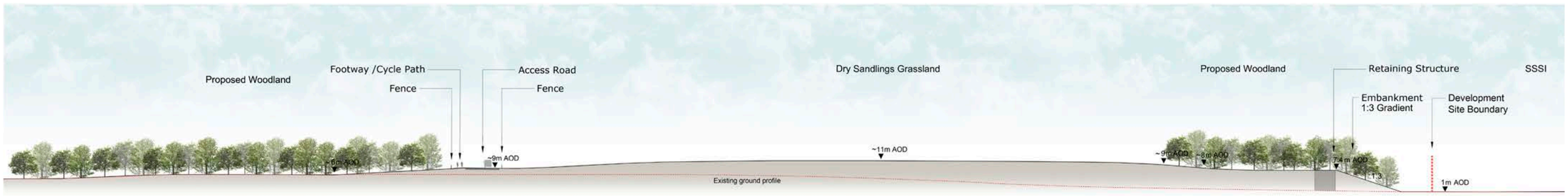
Proposed contours are indicative and include existing contours within the Development Site Boundary which are retained and new landforms that are designed to accommodate surplus spoil.

Contours and spot heights will evolve through detailed design.

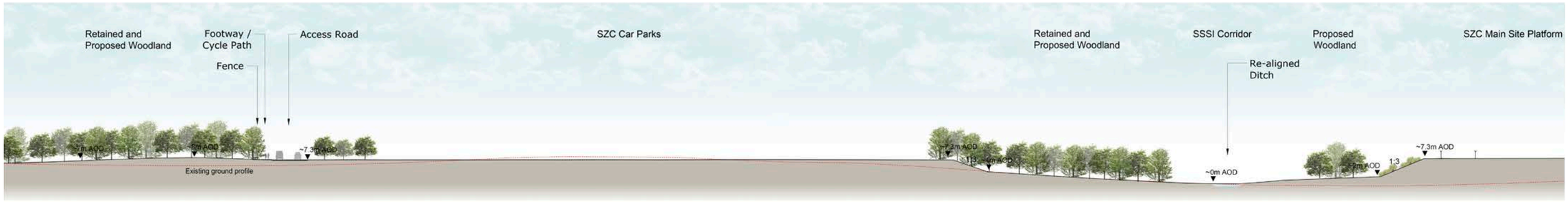
Figure 8.15: Indicative landform strategy
(SZB relocated facilities Option 2 layout)



Section A-A'

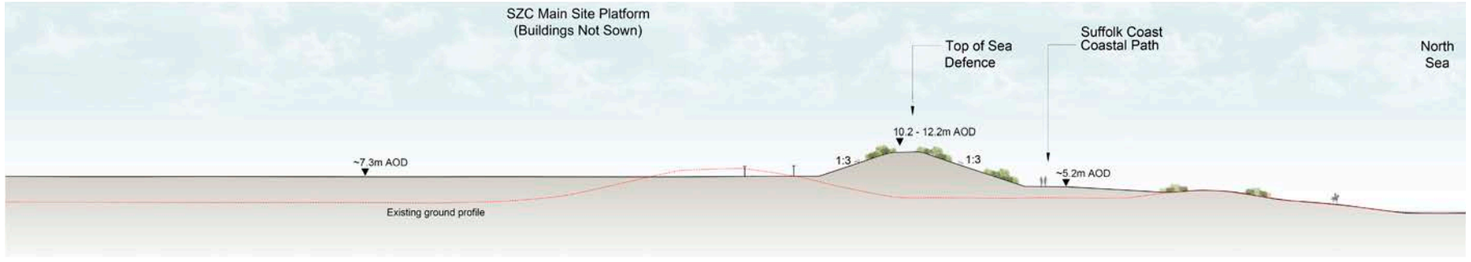


Section B-B'



Section C-C'

8.6.11 The indicative sections in **Figure 8.16** show how slope gradients are typically very shallow and sit comfortably within a landscape such that they are neither dominating, nor have an engineered appearance. Landform will be further softened by planting and seeding. During detailed design, slope profiles will be further modified including creating specific topographical conditions for particular habitats / plant communities etc. This will be set out in the landscape and ecology scheme submitted for approval pursuant to Requirement 14.



Section D-D'

Figure 8.16: Landform sections

Section location plan

8.7 Amenity and Recreation Strategy

8.7.1 The restoration of a rights of way and access network within the areas impacted by construction activity is a fundamental component of the illustrative Landscape Masterplan. The principles of the strategy are set out in **Chapter 5** of this statement, Design Principles 13 and 14, whilst a summary of the access restoration and enhancement indicative proposals are provided below. This is set out in the **Rights of Way and Access Strategy** (Doc Ref. 10.26) secured pursuant to Requirement 6A and an obligation to maintain existing rights of way across the Estate is set out in the **EWMP** (Doc Ref. 10.15) secured pursuant to Requirement 5C. Reference should be made to **Figure 8.17**.

8.7.2 During operation the permanent route of the coast path (accommodating the Suffolk Coast Path, Sandlings Walk, PRoW E-363/021/0 and the future England Coast Path) will run parallel and east of the hard coastal defence landform which will help to screen the main development site and the operational power station. An informal path would also be provided higher on the sea defence as an alternative walking route.

8.7.3 A new bridleway through Kenton Hills and Goose Hill, linking bridleway E-363/019/0 (Bridleway 19) with the accessible coastline would be made available, secured through the Deed of Obligation; this would be the permanent route of Sandlings Walk.

8.7.4 A new off-road north-south bridleway will extend from Sizewell Gap and St George's Avenue in the south to the northern end of Bridleway 19 on Eastbridge Road. This will provide a safe route for pedestrians, cyclists and equestrians to travel off-road, allowing an enhanced route for people travelling between locations such as Leiston, Aldhurst Farm and Sizewell in the south and the main development site entrance, and Eastbridge in the north. A new bridleway link will also be created between Aldhurst Farm and Kenton Hills including a crossing point over Lover's Lane. These routes will provide permanently enhanced recreational opportunities during operation.

8.7.5 The existing car park serving Kenton Hills will be improved during the construction phase. Additional parking spaces will be provided and the car park surfacing and the access road to it will also be improved. Signage would be enhanced by replacing existing wayfinding and information boards adjacent to the car park and providing a sign on Lover's Lane promoting the parking and walking facilities. The informal path that provides access to the network of permissive paths in Kenton Hills will be formalised as a permissive path.

8.7.6 In addition, before construction of Sizewell C commences, public access has been provided to specific areas of land within the Aldhurst Farm habitat creation area for informal recreation, as part of a separate but related planning application.

8.7.7 The habitat at Aldhurst Farm was created in accordance with planning permission granted by Suffolk Coastal District Council (SCDC) (planning application reference DC/14/4224/FUL) to provide wetland habitat to replace an area of Sizewell Marshes SSSI that would need to be removed to construct Sizewell C. An access scheme to discharge condition 25 of planning application DC/14/4224/FUL (East Suffolk Council (ESC) reference DC/19/3727/DRC) was approved by ESC on 25 November 2019, providing approximately 27ha of new open access land, informal and surfaced footpaths including a new footpath link between the B1122 (Abbey Road) and Lover's Lane and Bridleway 19, and a new car park, and these have been implemented and made accessible to the public in 2021. Under schedule 11 of the DoO, SZC Co. has committed to preparing and submitting a planning application for further improvements, to make this more attractive, including expanding the car park to 20 spaces, a bird hide, seats and further signage. As such, areas of permanent open access for walking and allowing dogs off-lead, and a small car park is provided, and will be improved further, on the edge of Leiston for regular walks from home, and for people wishing to drive from further afield.

Legend

Sizewell C Main Development Site

Demarcation Line

Existing Access

Registered Common Land

Open Access Land

Public Right of Way (PRoW) - footpath

(PRoW) - bridleway

(PRoW) - restricted byway

(PRoW) - byway

Permissive footpaths in Estate

Sustrans regional cycle route 42 (diverted)

Proposed Enhancements / Diversions

Improvements to Kenton Hills car park implemented during construction phase retained

Permanent new route encompassing bridleway, cycleway and footpath

Permanent re-aligned Suffolk Coast Path, Sandlings Walk and England Coast Path

New permanent footpath

New permissive footpath

New permanent bridleway for the route of Sandlings Walk

Proposed controlled Pegasus crossing

Proposed uncontrolled bridleway crossing

Aldhurst Farm access to be provided under Discharged Condition 25 of Planning Permission reference DC/14/4224/FUL

Approximate areas to be made Open Access Land

Aldhurst Farm car park

Aldhurst Farm surfaced footpath (PRoW)

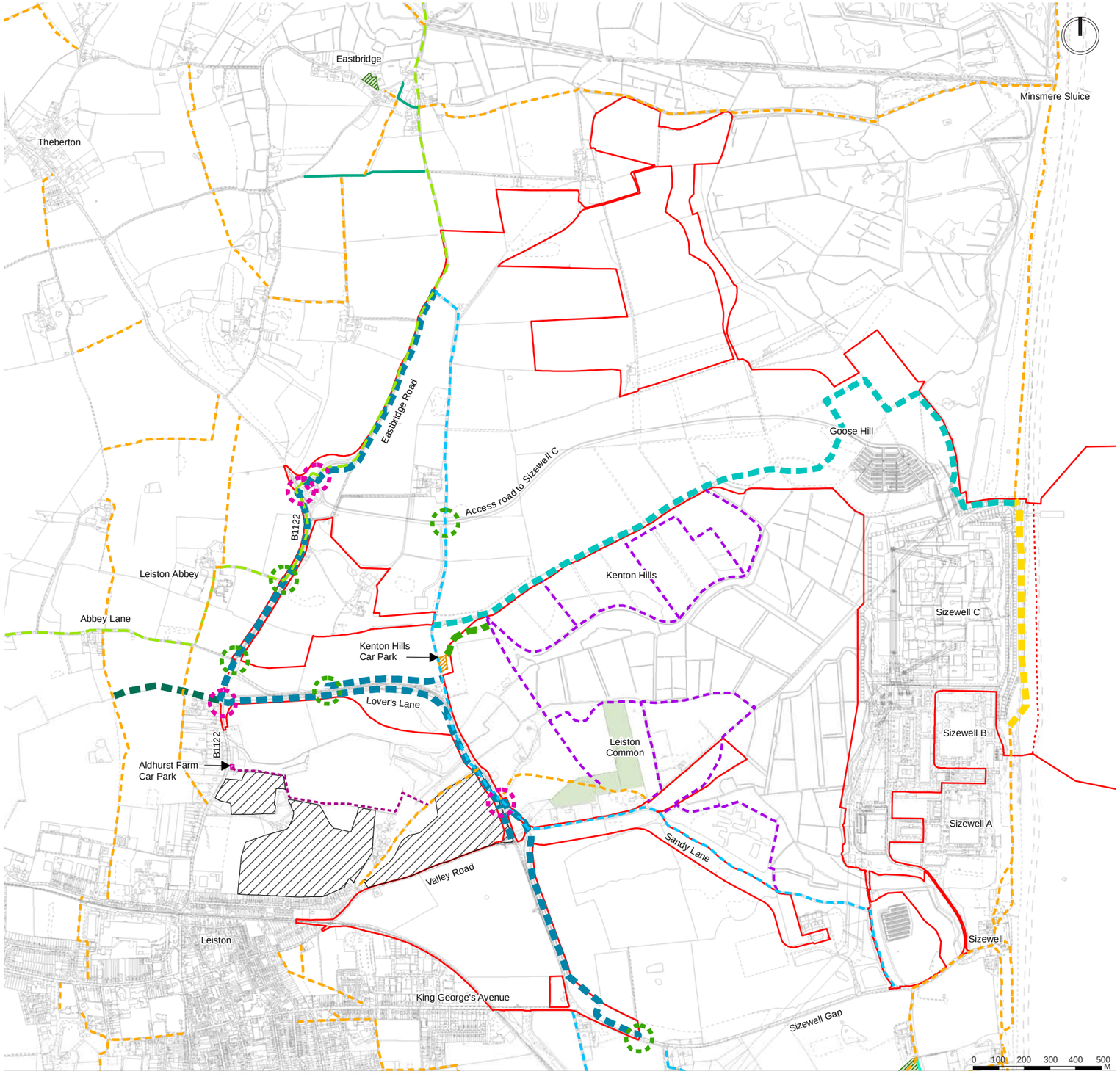


Figure 8.17: Rights of way and access - operational phase (Indicative)
(SZB relocated facilities Option 2 layout)

8.8 Landscape Masterplan

8.8.1 This section describes the landscape masterplan within the context of the overarching restoration strategy. The construction of Sizewell C is set out in the **Construction Method Statement** (Doc Ref. 10.3) and secured pursuant to Requirement 8. This section is only secured to the extent that it is relevant to the restoration works set out in the landscape and ecology scheme approved pursuant to Requirement 14.

8.8.2 Site access road and junction with B1122

8.8.3 The Landscape Masterplan (refer to **Figure 8.3**) illustrates the route of the proposed access road from the B1122 (Abbey Road) to the power station.

8.8.4 A new roundabout junction would be constructed on the B1122, just north of Abbey Cottage, which would form the primary entrance to the Estate (refer to **Figure 8.18**). The junction is designed in accordance with road safety standards and allows for the movement of AILs to access both Sizewell C and Sizewell B power stations throughout the construction and operational phases.

8.8.5 Tree and hedgerow planting would anchor the new road junction into the existing landscape fabric and soften its appearance. To the west of the roundabout, a disused section of the B1122 would form part of the new bridleway, cycleway and footpath route connecting to Eastbridge Road with the existing hedgerow field boundary retained. To the north, south and east of the roundabout, new blocks of tree planting would screen views into Estate and provide habitat connectivity between existing blocks of woodland to the north and south. Most planting would be implemented early in the construction phase to allow maximum time for establishment and screening potential. Post construction, the roundabout would be reduced in scale with one of the access arms removed and replaced with further planting (pursuant to Requirement 16 of the **dDCO)**. There would be no tree planting within the roundabout island itself which would be kept clear for AIL movements.

Figure 8.18: Site entrance (Indicative)

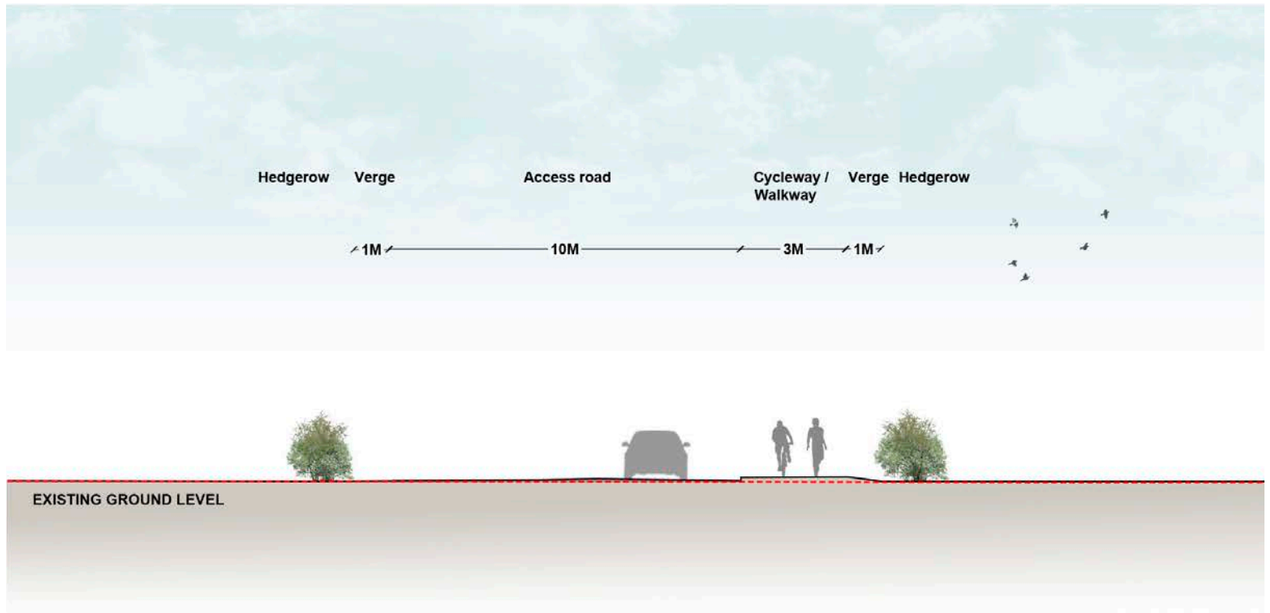
Legend

1. AIL access
2. Bridleway, cycleway and footpath route
3. Main Access Road
4. Upper Abbey Farm access
5. Woodland planting
6. Semi improved grassland

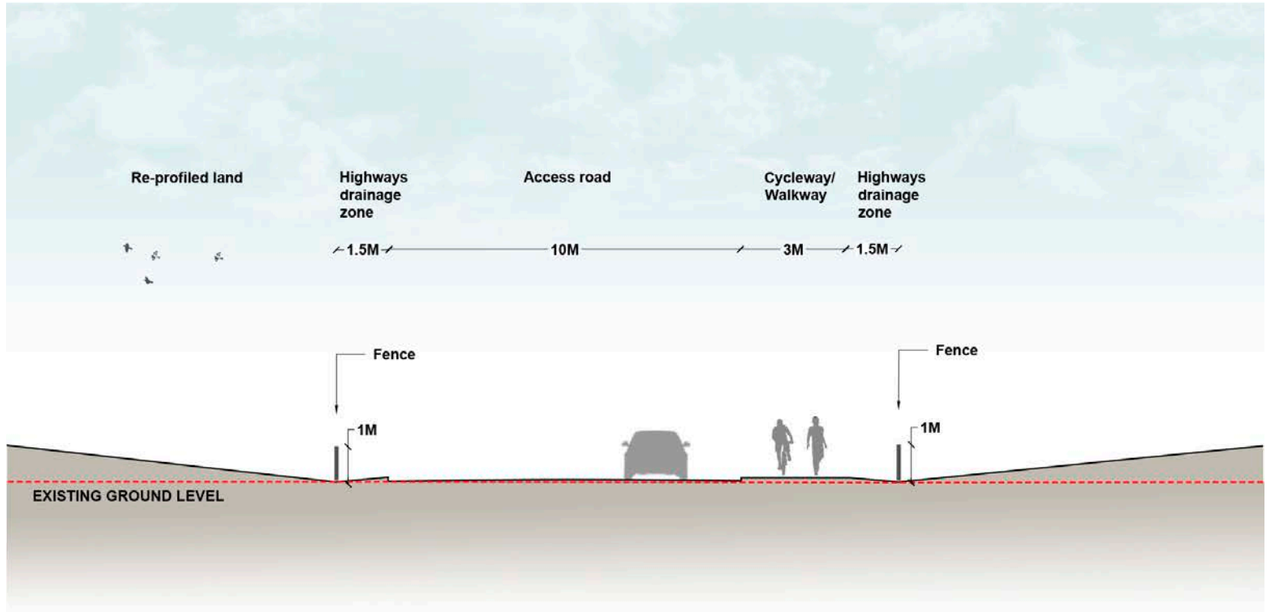
8.8.6 Signage at the entrance would convey the message that the access road is primarily for the use of Sizewell C workers and visitors. Lighting bollards and columns are proposed within the junction in accordance with section 1.4 of the **Lighting Management Plan** (Doc Ref. 10.17) (secured pursuant to Requirement 15 of the **dDCO)**.

8.8.7 The overall alignment of the operational access road would follow the route of the former principal construction road and have a sinuous character typical of the local road network. Post construction, the access road would be reduced in width and scale for operational use and would comprise a permanent two-lane carriageway with a segregated route for cyclists and pedestrians. Highway boundaries would reflect the changing character of the restored landscape and are described below. The access road would not be lit, with the exception of the junction with the B1122, the off-site delivery check point and operational phase car park. **Figure 8.19** shows some typical sections of the access road at different locations along its length.

Section location plan



Section O-O'



Section P-P'

Figure 8.19: Indicative access road sections

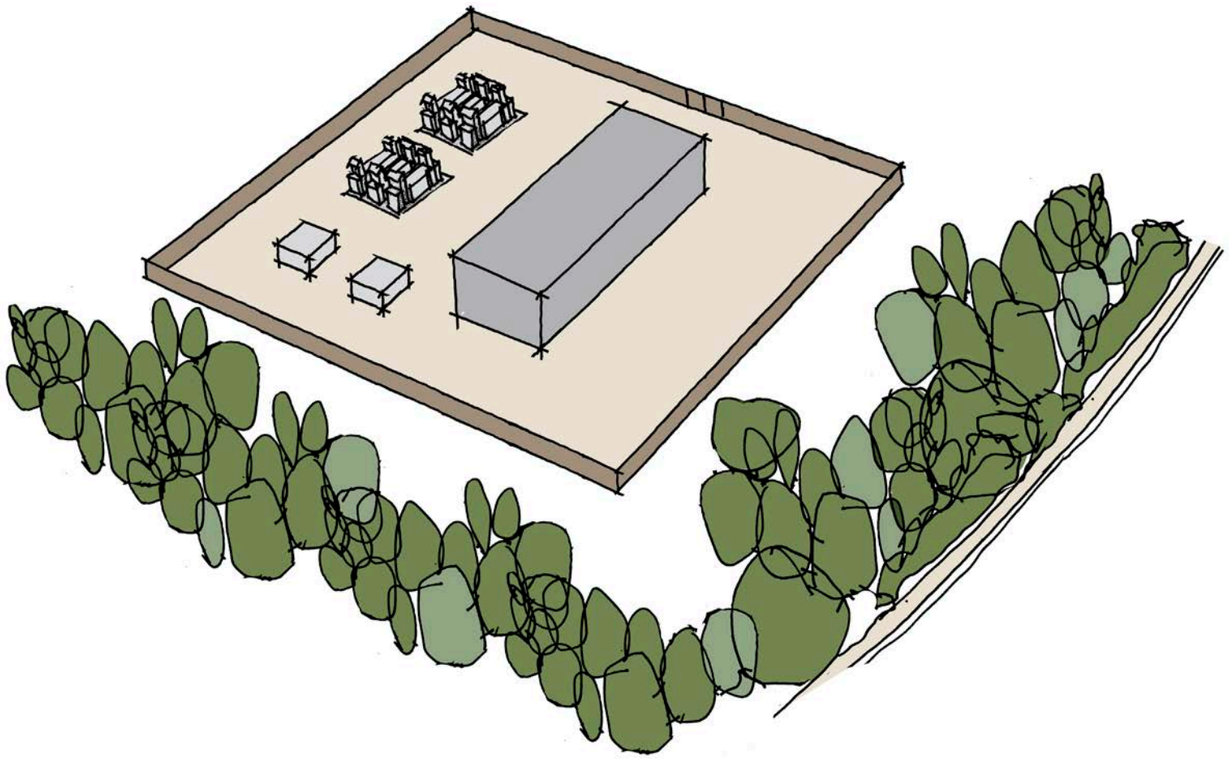
8.8.8 Upper Abbey Farm

8.8.9 To the west of Bridleway 19, the existing collection of buildings at Upper Abbey Farm would be retained and the adjoining agricultural landscape would be restored to semi-improved grassland. This would ensure an appropriate setting to the established farm buildings and provide a viable farming environment without recourse to irrigation.

8.8.10 The existing framework of field boundaries along Bridleway 19, Eastbridge Road and the boundary of Old Abbey Farm would be retained throughout construction. Internal hedgerows, removed for construction, would be reinstated to match the pre-construction landscape and create an enclosed network of agricultural fields. New sections of road, including the diverted Eastbridge Road and the operational access road west of Bridleway 19 would be enclosed by hedgerow planting on either side of the road.

8.8.11 A new substation to the south of Upper Abbey Farm would be constructed by SZC Co. This would be constructed as part of the construction phase activities and retained within the operational phase to complete the electrical connection between the Leiston substation at Sizewell Wents and other ancillary buildings. The substation compound would measure approximately 60m x 60m, including the main building, and would be connected to the main access road via a maintenance road (refer to **Figure 8.20**).

Figure 8.20: Upper Abbey Farm

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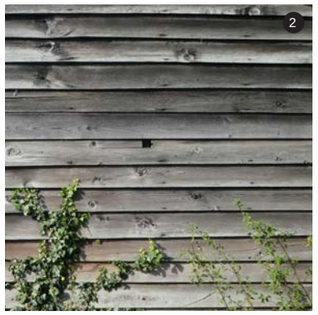
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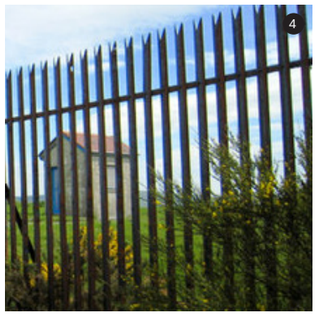
4

[1] Dark timber

[2] Timber fence

[3] Dark metal cladding

[4] Metal fencing

Figure 8.21: Indicative view of substation

8.8.12 New Sandlings Landscape

8.8.13 East of Bridleway 19, an extensive area of dry sandlings grassland (approx. 121 ha) and mixed woodland (approx. 51 ha) would be created across a gently undulating and naturalistic landform. This new landform would be created from surplus spoil arising from the construction works and is modelled on local topography and precedent. It would comprise a series of low mounds positioned either side of operational access road immediately east of Bridleway 19, and another mound south of the access road near to Goose Hill. Gradients are gentle and range from approximately 1:20 to 1:50, reaching a maximum height of 18m AOD near Ash Wood.

8.8.14 The landscape would be open with broad swathes of grassland and unbroken views. Cattle grazing would ensure that the landscape remains open while scattered trees, gorse and clumps of bracken would be allowed to naturally regenerate in areas. Woodland stands would be typically located on raised land while more substantial woodland planting is proposed at the edges of the site, to diversify and strengthen the existing forestry plantation within the estate and reinforce existing tree belts. **Figure 8.2** shows the extent of dry sandlings grassland and the proposed tree planting within the operational masterplan.

8.8.15 Steeper slopes are designed to face onto the access road so that the road sits within the landscape and is reminiscent of the local road network. Highway boundaries allow for open views of the adjoining landscape and comprise estate fencing and / or field ditches where required to control cattle movement and ensure safe access and egress to the power station at all times.

8.8.16 Goose Hill

8.8.17 SZC Co. would create an operational staff car park at the eastern end of the access road, north of the SSSI crossing. The car park would accommodate approximately 1,370 spaces with clear vehicular and pedestrian circulation. Parking spaces are divided between permanent parking spaces for day-to-day operation (approximately 770) and spaces required during outage periods (approximately 600).

8.8.18 **Figure 8.22** shows an illustrative masterplan of the operational car park on Goose Hill. The car park would have a strong woodland character and be surrounded by existing and proposed woodland planting that responds to the AONB context and provides a high level of visual containment. Further planting is proposed within the car park itself: to break up the volume of parking spaces into smaller parking courts; to provide separation from the main access road; to emphasise pedestrian routes; and to provide an attractive setting for staff. The permanent car parking spaces would be most frequently used and are located in close proximity to the SSSI crossing and pedestrian access route to the power station. The outage car park would be less intensively used and is positioned to the west of the permanent car park. A softer palette of surface finish materials would be proposed for the outage car park.

Legend

- Permanent car parking (735 spaces)
- Outage car parking (600 spaces)
- Training centre visitor car parking (35 spaces)

1. Existing woodland
2. Proposed woodland
3. Main East-West pedestrian routes
4. Main North-South pedestrian routes
5. Main North-South vehicle & pedestrian routes
6. Proposed tree planting within car park
7. Offsite Delivery Checkpoint
8. Main Access Control Building

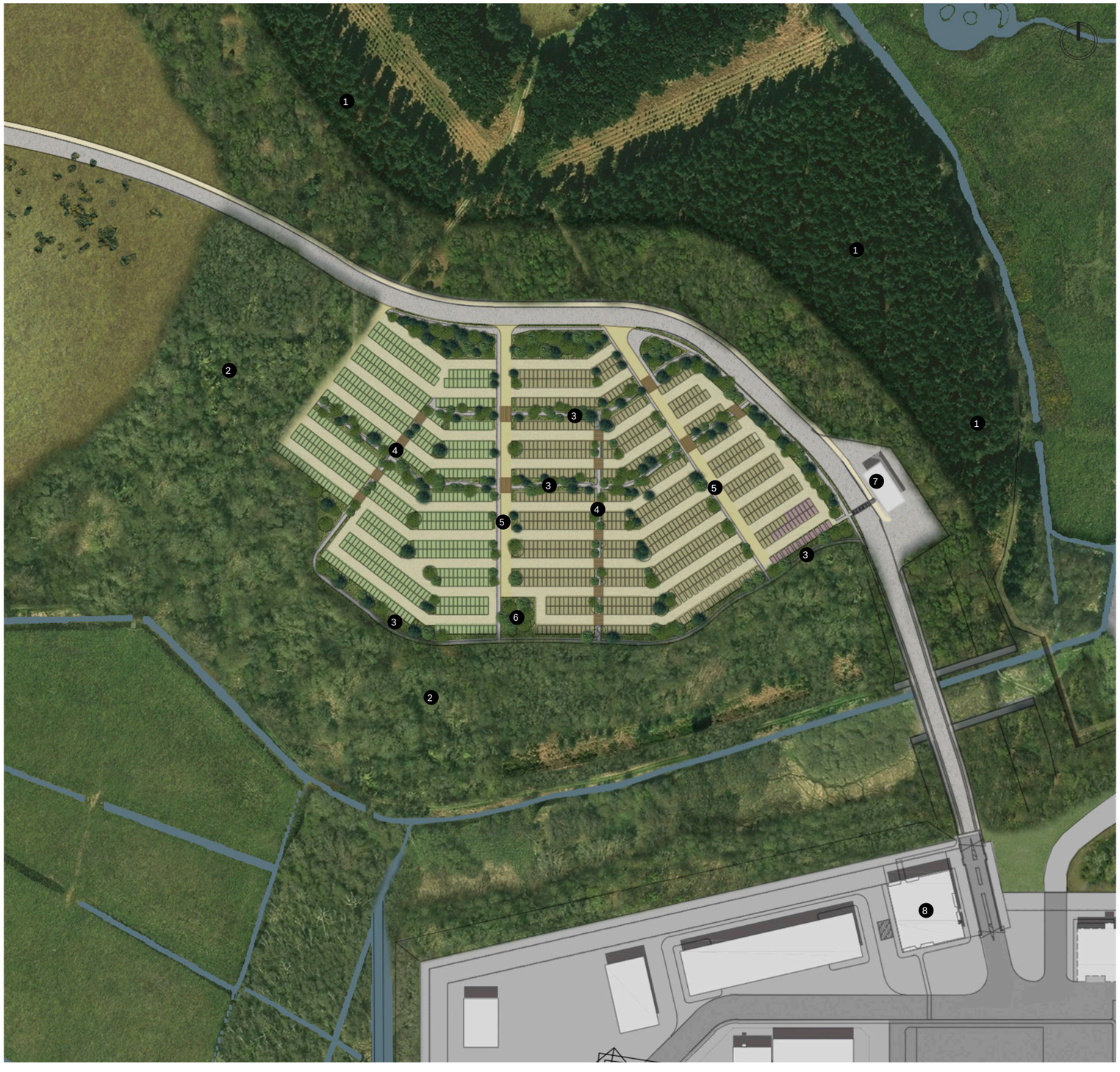

Figure 8.22: Indicative masterplan of Goose Hill

8.8.19 SSSI Crossing

8.8.20 The SSSI crossing provides the primary pedestrian and vehicular route to the power station platform. It is located at the narrowest practicable location of the SSSI corridor to minimise environmental impact.

8.8.21 The proposed design would comprise separate embankments at either end of the SSSI crossing with a 30m long single-span bridge connecting them and the permanent access road positioned on top. The embankment would have an approximate width of 40m at road level and an overall width of 70m at its base. The footprint would remain the same for both the construction and operational phases of the masterplan to minimise disturbance to the SSSI corridor.

8.8.22 The seaward facing slope of the SSSI crossing would be set at a gradient of 1:3 to facilitate the establishment of vegetation and present a more naturalistic landform where it is visible from adjacent footpaths and coastal area. The embankment slope would allow for scrub and tree species to soften the appearance of the crossing and provide visual screening and integration with the existing landscape. The western facing slope would have very limited visibility from public areas and would have a gradient of 1:1 to minimise land take within the SSSI. The western facing slope would be seeded with grass to soften the appearance of the crossing and provide integration with the existing landscape.

8.8.23 A single span bridge would connect the crossing embankments above the Leiston Drain creating an approximate 24m wide passageway which runs perpendicular to the crossing. The passageway is significantly larger than is required for operational purposes and the bank and channel of the Leiston Drain would remain intact. The passageway is of sufficient size to facilitate the passage of bats and water voles through the structure and retain its function as an ecological corridor. A ledge would still be installed to enable passage by otters and artificial bat roosts would be included within or on the bridge abutments.

8.8.24 The construction haul road would be removed at the end of the main construction phase and then planted with trees as part of the operational phase to provide screening of the site access road. The retained access road would be positioned to the western edge of the embankment, away from the coastal edge and would not be lit to reduce environmental impact. The carriageway would have an approximate width of 12m width and require 3m high safety barriers on either side. A visualisation of the SSSI crossing is shown in **Figure 8.23.**

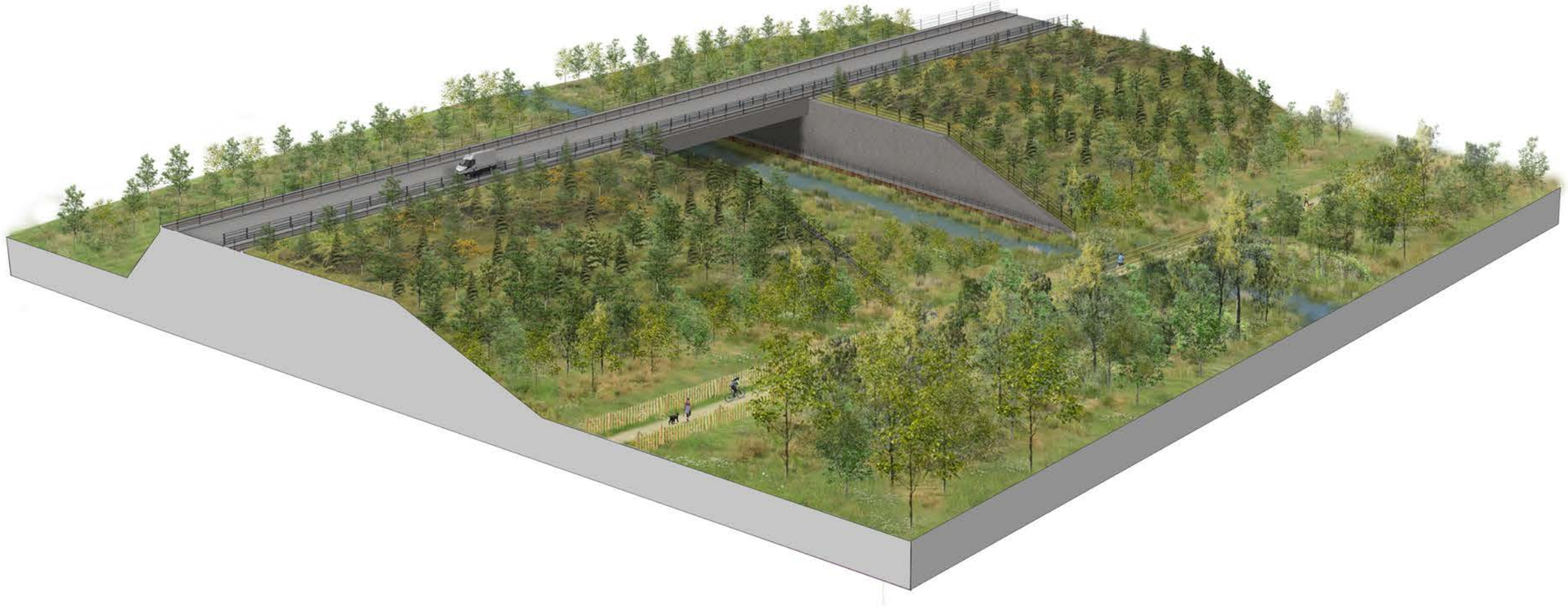

Figure 8.23: Visualisation of SSSI crossing

8.8.25 Northern Mound and Sea Defences

8.8.26 The permanent sea defences (including the Northern Mound) would protect the main platform from flooding during storm surges and high waves.

8.8.27 The proposed design of the permanent sea defence (including the Northern Mound) would have minimum crest height of +12.6m AOD (excluding soil build up to support vegetation /planting). This height provides for a 1 in 10,000 year storm event at 2140, including a precautionary assumption for wave height. The seaward toe of the sea defence would be buried to a depth of no less than approximately +0mOD.

8.8.28 The Northern Mound would form part of the structural sea defence to the main platform and would be removed and rebuilt during the construction phase to ensure it has the necessary structural strength. It would tie into the Sizewell C defence to the south and the SSSI crossing to the north, providing a continuous line of defence along the coast.

8.8.29 The permanent design of the Northern Mound would include rock armour placed on the seaward side of the sea defence, which would be top dressed with substrate to allow for vegetation establishment and to soften the appearance of the mound. The replacement mound would be built up to a height of 14.6m AOD, 2m higher than the height required to meet flood protection requirements and 2.6m higher than the existing Northern Mound. Raising the height of the mound to 14.6m AOD has significant advantages in screening lower level structures on the main platform from sensitive views along the coast.

8.8.30 The Northern Mound would have a natural, vegetated appearance similar in character to the Sizewell B sea defence. The outward, public facing slopes of the Northern Mound would have a typical gradient of 1:3 to aid the establishment of vegetation and match the profile of the existing Sizewell B defences. The engineered structure of the Northern Mound would be ‘top dressed’ with a soft fill material and planted as a mosaic of coastal grasses, scrub and trees on the front and back slopes, softening the appearance of the mound and providing additional screening and habitat. Land to the rear face of the mound would be raised to a height of approximately 11m AOD post construction and is deliberately set lower than the crest of the sea defence to create a sheltered area to provide an enhanced environment to support the establishment of trees in this important area. A visualisation of the Northern Mound is shown in **Figures 8.24** and **8.25**.

8.8.31 The permanent design of the sea defence along the coastline would comprise an embankment with ‘rock armour’ placed along its length, beneath the surface substrate layers, to provide structural reinforcement and protect against erosion.

Figure 8.24: Illustrative view of northern mound - year 1

Figure 8.25: Illustrative view of northern mound - year 15

8.8.32 The crest of the sea defence would vary between 13.2m – 14.6m AOD, including a 12.6m AOD hard engineered structure to meet the necessary flood protection requirement, and an additional 0.6m – 2m of substrate to allow for vegetation establishment and to naturalise the appearance of the bund. The substrate layer would be constructed to varying depths in order to create undulations in the landform, to naturalise its appearance and create niches for habitat variation.

8.8.33 The seaward facing slope of the defence would be set at a typical gradient of 1:3 to encourage the establishment of vegetation and deliver a more naturalistic landform where it is visually prominent from the coastal area. The face of the bund would undulate and be planted with coastal scrub and dune grassland species. It would be managed in line with the existing Sizewell B sea defence to achieve a similar naturalistic appearance. Raising the height of the sea defence by up to +2m above the required flood protection would be achieved through localised steepening of the substrate layer in some sections. This would provide additional screening of lower level structures and activity within and around the power station platform where required.

8.8.34 The publicly accessible coastal margin would extend up to the SZC platform security fence and allows for an informal footpath along the crest of the sea defence. The platform facing slope would be set at a gradient of 1:3 to facilitate public access. It would be a flat surface and seeded with grassland species where it is less visible and a more engineered appearance is acceptable.

8.8.35 An approximate 12m wide plateau would be created along the seaward face of the defence at a minimum height of 5.2m AOD, to accommodate the England Coast Path and the movement of security patrol vehicles along the coast. The design of the sea defence allows for variation in the width and height of the plateau to create a naturalistic landform. Further east and towards the sea, the soft coastal defence would be raised along the existing line of the soft sea defence to provide additional coastal protection with the existing vegetated shingle and beach habitats replicated. A visualisation of the sea defence is shown on **Figure 8.26**.

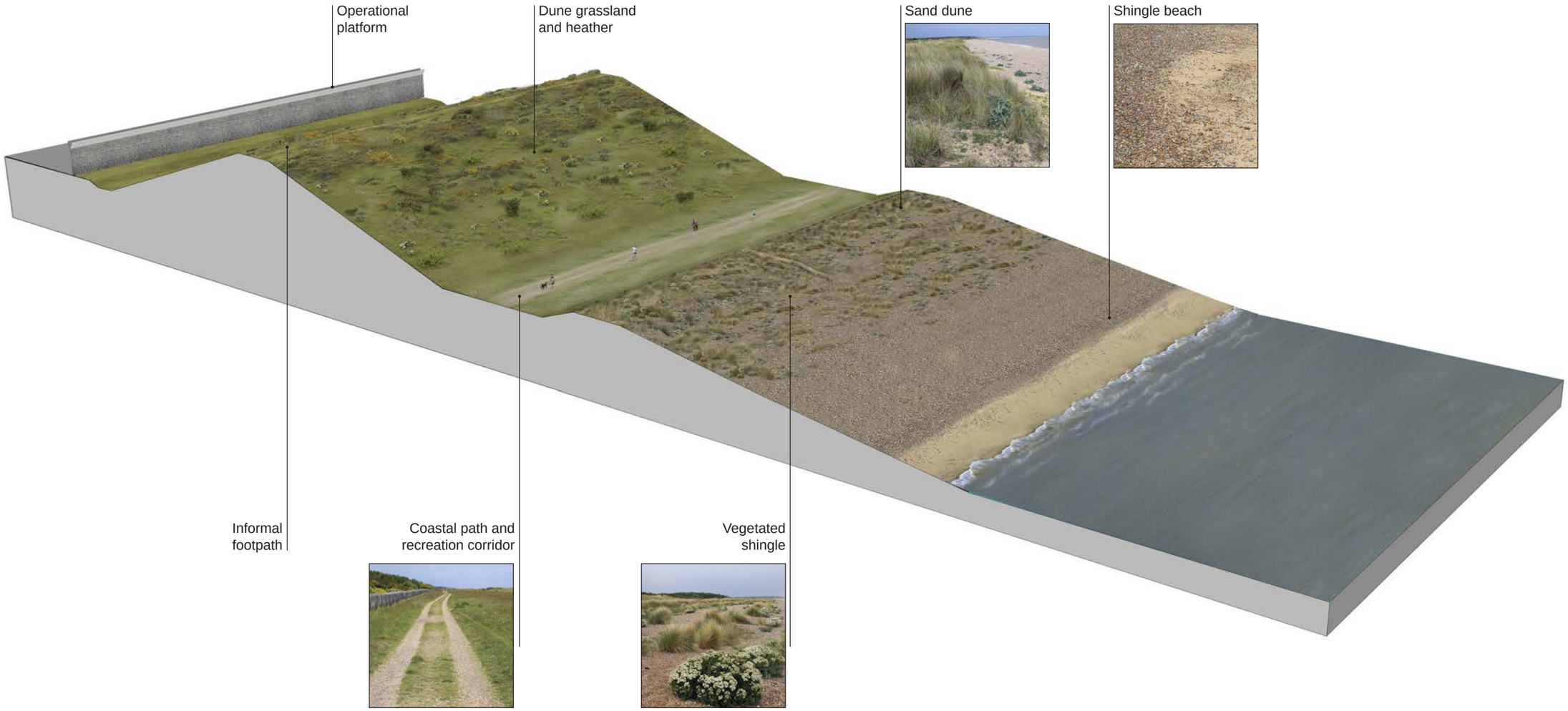

Figure 8.26: Visualisation of the sea defence

8.8.36 Beach Landing Facility

8.8.37 A BLF would be located on the coast directly in front of the Northern Mound with an associated private access road connecting to the main platform. It would be used to deliver large deliveries into Sizewell C by barge. The barge would be loaded with large deliveries at a transhipment port, towed to the shore, moored in position and the barge then beached. Large deliveries would then be transported to site along the BLF access road, which is aligned to the northern face of the Northern Mound. It is anticipated that the BLF would be used infrequently during the operational phase, approximately every 5-10 years for a few weeks at a time, during which periods any beach closures would be reduced to a minimum and publicised in advance where possible.

8.8.38 During construction, the design of the BLF would include a submerged grounding platform at the seabed (also known as grillage) to better align the barge deck with the platform, making deliveries safer and more efficient. The submerged platform would be removed by the end of the Sizewell C construction period and would not be required for operation when the BLF would be used less frequently.

8.8.39 During operation, the BLF would consist of a piled and decked structure built across the beach and out into the sea. When not in use during the operational phase of the power station and during the winter months of construction, the permanent BLF deck would be dismantled and taken away for storage. Approximately 24 no. engineering piles, 12 no. cross beam supports and 4 no. fender piles would remain in place and form a permanent presence on the coast. This is the minimum number required to support the BLF loading requirements and ensure long term structural integrity.

8.8.40 The BLF access road provides a permanent ramped connection between the power station platform (+7.3m AOD) and the BLF landing platform (+5.2m AOD). The access road and landing platform would be constructed from reinforced concrete. A visualisation of the BLF and access road is shown in **Figure 8.27**.

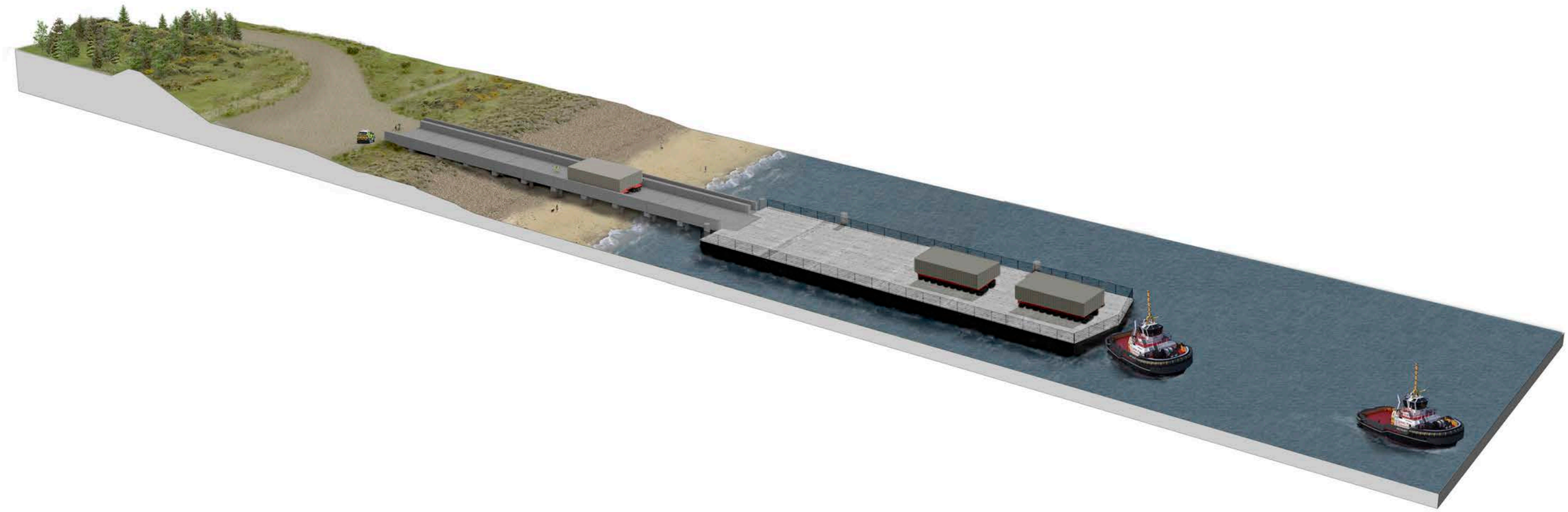

Figure 8.27: Visualisation of the beach landing facility and access road

8.8.41 Land East of Eastlands Industrial Estate

8.8.42 Post construction, the temporary rail head at LEEIE would be removed and the land would be reinstated to arable land, as shown on **Figure 8.28**. The land would be reprofiled to match pre-construction levels. Additional planting would be implemented along the boundary of the Eastlands Industrial Estate to reinstate the hedgerow once the rail head has been removed.

8.8.43 North of Lover's Lane, the rail extension into the main development site would be removed including the rail crossing junction on the B1122. The area of land immediately north of Lover's Lane would be returned to arable land and reprofiled to match pre-construction levels. The secondary site access would be retained for agricultural use only.

8.8.44 Pillbox Field

8.8.45 The proposal within the DCO submission for Pillbox Field include two options. Option 1 proposes the removal of replacement Sizewell B car par and associated access road from Pillbox Field. Therefore, only mitigation planting would be proposed. The landscape proposals for Pillbox Field would provide ecological enhancement and mitigation planting for trees lost from Coronation Wood while preserving the setting of the pillbox (a locally important heritage asset) and supporting the broader masterplan vision for the Sizewell Estate.

8.8.46 One hectare of new woodland and woodland edge planting is proposed within Pillbox Field and provides replacement planting for the loss of Coronation Wood. Woodland planting also provides enhanced visual screening of the power station infrastructure from Sizewell Gap and Sandy Lane, and increased habitat connectivity.

8.8.47 No tree or woodland planting is proposed to the south or directly east of the pillbox in order to preserve the setting of the pillbox and maintain associated sight lines. New hedgerow planting is proposed in several locations along Sandy Lane bridleway and Sizewell Gap to repair gaps within the existing hedgerows and enhance connectivity.

8.8.48 Remaining land which is not subject to proposed tree and hedgerow planting comprises existing dry grassland (on slopes and higher ground to the north) and wet grassland and scrub (on lower areas to the south). These areas will be retained as existing and be managed to contribute to and extend areas of acidic heathland in accordance with the wider objectives for the Sizewell Estate. A visualisation showing the Option 1 Pillbox Field proposals is shown in **Figure 8.29**.

8.8.49 Option 2 included within the application, is an unlikely scenario, in the event that the Sizewell A land does not become available. The Sizewell B outage car park would be relocated to the northern end of Pillbox Field, as shown in **Figure 8.30**. The car park would provide 576 car parking spaces for use during Sizewell B outage period and would not be used outside of these periods.

8.8.50 The landscape proposals for Pillbox Field aim to assimilate the proposed infrastructure within its landscape and visual setting whilst minimising localised impacts on the character and special qualities of the AONB landscape. The car park is situated to the north of Pillbox Field, and will be set into lowered ground behind the existing ridgeline.

8.8.51 The planting design serves to establish an effective screen around the southern and eastern portion of the car park in order to restrict views of the development. This would be achieved by dense planting of mixed species – including, within the mix, species that exhibit relatively rapid growth rates (birch and pines). A scrubby edge / understory would also be planted to intercept lower level views from the south and west (from Bridleway 19). The remainder of the field (used for construction) will be returned to a sandlings grassland. The planting and seeding proposals will provide localised biodiversity enhancement which is aligned with the aspirations of the wider estate.

8.8.52 The proposed surface materials for the car park and access road comprise a grass reinforcement system with open cells filled with soil and seeded with a robust sward mix to provide an appearance akin to an open field. The apron which forms the bellmouth and access junction from Sizewell Gap would be an asphalt surface with highways standard junction marking and signage.

Figure 8.28: Land east of Eastlands Industrial Estate


Figure 8.29: Visualisation of Pillbox Field proposals - Option 1

Figure 8.30: Pillbox Field - Option 2

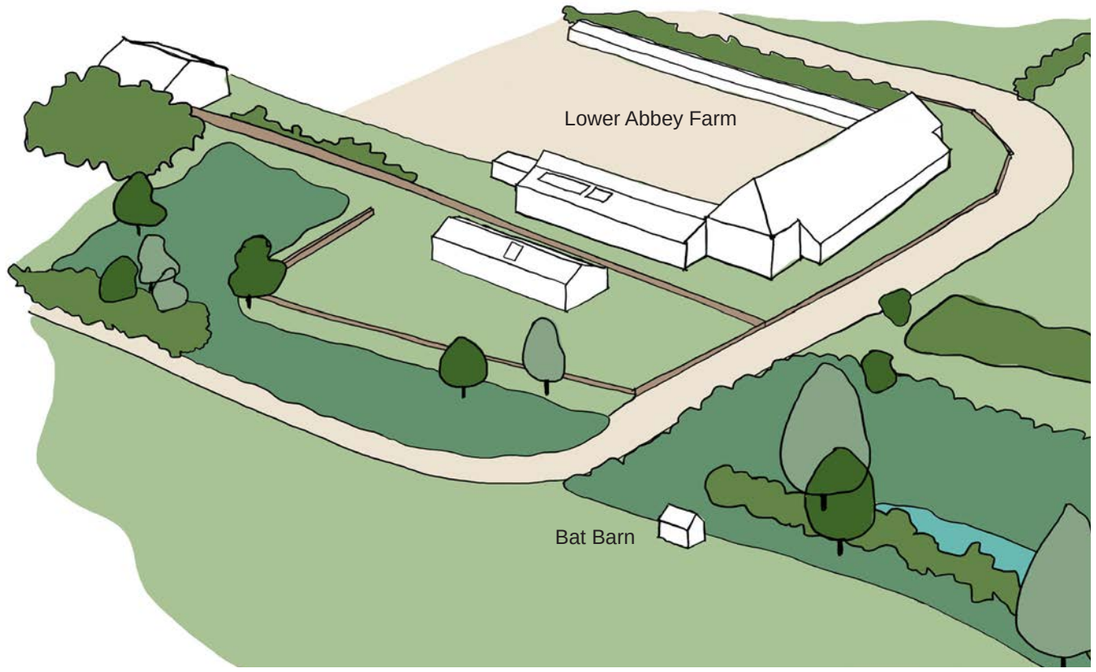

Figure 8.31: Indicative view of the Bat Barn

8.8.53 Bat Barn

8.8.54 A new bat barn would be constructed to the north of Lower Abbey Farm and form part of the existing collection of buildings to the north of the Estate, where it is unlikely to be visible from publicly accessible locations. Grouping the bat barn with the existing farm buildings at Lower Abbey Farm provides an established context of built infrastructure within the landscape. The structure would be a maximum height of 8m AOD and the footprint would be up to 25m². It would comprise a lightweight, piled structure designed to have minimal impact on the environment. An illustrative image showing the location of the bat barn in the context of Lower Abbey Farm is shown at **Figure 8.31**.

8.8.55 The bat barn would be located close to existing bat flight paths [routes] with a dark corridor from the adjacent habitat in accordance with the **Lighting Management Plan** (Doc Ref. 10.17). The bat barn would be provided to compensate for the probable abandonment of Brown Long-eared Bat roosts at Upper Abbey Farm and Ash Wood Cottages. The bat barn would need to be operational before the bats are sufficiently disturbed, so very early in the construction phase of works, and remain as a permanent structure.

8.8.56 Flood Mitigation and Wetland Habitat Area

8.8.57 Additional flood mitigation and wetland habitat areas would be created to the north of the Application site boundary as shown on **Figure 8.3**. The existing landform would be remodelled to provide approximately 100,000 cubic metres of additional flood mitigation volume and create additional wetland habitats. The creation of wetland habitat would comprise open water channels and wet reedbeds to provide high quality foraging habitats for Marsh Harriers.

8.8.58 These features would be created as part of the construction phase activities and retained within the operational phase to form part of the permanent Landscape Masterplan.

8.8.59 Once the construction of Sizewell C is complete and compensatory Marsh Harrier foraging habitats are no longer required, the open water and wet reedbed habitats would be transitioned to wet woodland habitats, either through natural successional processes or through planting. In the long term, this would compensate for the loss of wet woodland from the Sizewell Marshes SSSI.

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