



The Sizewell C Project

6.1

Volume 1 Introduction to the Environmental Statement
Chapter 2 Overview of the Sizewell C Project
Appendix 2A - Sizewell B Relocated Facilities Environmental
Statement
Part 2 of 4

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SIZEWELL B RELOCATED FACILITIES –
PLANNING APPLICATION

Environmental Statement

Volume II: Technical Appendices



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ENVIRONMENTAL STATEMENT

VOLUME 2: TECHNICAL APPENDICES

CONTENTS

APPENDIX 3.1	LIGHTING STRATEGY
APPENDIX 3.2	DRAINAGE STRATEGY
APPENDIX 3.3	OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN
APPENDIX 5.1	EIA SCOPING REPORT
APPENDIX 5.2	EIA SCOPING OPINION
APPENDIX 5.3	AIR QUALITY TECHNICAL NOTE
APPENDIX 6.1	TERRESTRIAL ECOLOGY AND ORNITHOLOGY TECHNICAL APPENDIX (AVAILABLE ON REQUEST)
APPENDIX 6.2	BADGER TECHNICAL REPORT (AVAILABLE ON REQUEST)
APPENDIX 7.1	LANDSCAPE AND VISUAL IMPACT ASSESSMENT METHODOLOGY
APPENDIX 7.2	LANDSCAPE AND VISUAL IMPACT ASSESSMENT LEGISLATION, POLICY AND GUIDANCE
APPENDIX 7.3	SUFFOLK COAST AND HEATHS AREA OF OUTSTANDING NATURAL BEAUTY (AONB), NATURAL BEAUTY AND SPECIAL QUALITIES INDICATORS
APPENDIX 7.4	SPECIAL LANDSCAPE AREAS, SPECIAL LANDSCAPE QUALITY INDICATORS
APPENDIX 8.1	GAZETTEER OF HERITAGE ASSETS
APPENDIX 8.2	GEOPHYSICAL SURVEY
APPENDIX 8.3	PILLBOX FIELD ARCHAEOLOGICAL EVALUATION
APPENDIX 8.4	CORONATION WOOD WALKOVER
APPENDIX 9.1	LOCAL WALKS
APPENDIX 11.1	PLANT LIST
APPENDIX 11.2	NOISE BASELINE SURVEY SUMMARY SHEETS

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APPENDIX 12.1	DEFINITIONS OF RISK, PROBABILITY AND CONSEQUENCE
APPENDIX 12.2	SCREENED CHEMICAL DATA
APPENDIX 12.3	CONCEPTUAL SITE MODEL (CSM)
APPENDIX 12.4	IMPACT TABLES
APPENDIX 14.1	FLOOD RISK ASSESSMENT
APPENDIX 14.2	WATER FRAMEWORK DIRECTIVE COMPLIANCE ASSESSMENT
APPENDIX 16.1	LONG LIST OF CUMULATIVE SCHEMES
APPENDIX 17.1	MITIGATION REGISTER

VOLUME II:
TECHNICAL APPENDICES

3.1 Lighting Strategy

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CONTENTS

1.	INTRODUCTION	1
1.2	Proposed Development Overview	1
1.3	Lighting Strategy Areas of Focus.....	2
2.	EXISTING LIGHTING CONTEXT	5
3.	LEGISLATION, POLICY AND GUIDANCE	7
4.	DESIGN DRIVERS AND PRINCIPLES	8
4.2	Design Drivers	8
4.3	Design Principles.....	8
5.	DESIGN SOLUTION OVERVIEW	10
5.2	External Design Solution Light Sources and Luminaires	10
5.3	Coronation Wood Development Overview.....	12
5.4	Pillbox Field	21
5.5	Outline Development Zone and Outage Store.....	33
	REFERENCES.....	34
	LIST OF ABBREVIATIONS.....	59
	GLOSSARY	60

TABLES

Table 2.1: Lighting Pollution Criteria	5
Table 5.1: Proposed Activities and Design Drivers for Coronation Wood Development External Areas.....	13
Table 5.2: Proposed External Lighting Solutions for Coronation Wood Development.....	14
Table 5.3: Alternative Laydown Area Lighting Options Considered	17
Table 5.4: Alternative Western Access Road Lighting Options Considered	20
Table 5.5: Alternative Car Park Lighting Options Considered	20
Table 5.6: Proposed Activities and Design Drivers for Pillbox Field	23
Table 5.7: Proposed External Lighting Solutions for Pillbox Field	23
Table 5.8: Alternative Outage Car Park Lighting Options Considered	24
Table 5.9: Alternative Access Footpath Lighting Options Considered.....	32
Table 0.1: Applicable Design Standards	41
Table 0.2: Lighting Performance Specification	41
Table 0.3: LED Criteria.....	41
Table 0.4: Luminaire Criteria	42
Table 0.5: Maintenance Activities.....	42

FIGURES

Figure 1.1: Coronation Wood Development and Pillbox Field Setting.....	3
Figure 5.1: LED (left hand side) and Sodium (right hand side) Light Sources for Comparison	10

NOT PROTECTIVELY MARKED

Figure 5.2: Horizontal Plane Light Cut-Off Proposed for Lighting Solutions (Full Cut-Off) 11

Figure 5.3: Example of Isolux Plots for Symmetric (LHS) and Asymmetric Luminaires (RHS). 11

Figure 5.4: Plan of the Coronation Wood Development Area..... 12

Figure 5.5: CGI Representation of the Proposed Coronation Wood Development 13

Figure 5.6: LHS – Isoline Calculation Result Extract for Laydown Area at 20% output; Middle - 50% output; RHS - 100% output 17

Figure 5.7: Elevation and Section of Proposed Coronation Wood Design in Vicinity of the Western Access Road..... 19

Figure 5.8: Model of the Training Centre in Relation to the Outline Visitor Centre 20

Figure 5.9: Training Centre (RHS) and adjacent Visitor Centre (Outline) Western Elevation... 21

Figure 5.10: Pillbox Field Proposed Outage Car Park Plan 22

Figure 5.11: CGI Representation of Pillbox Field Design 22

Figure 5.12: Permanent Outage Car Park Lighting Options Considered..... 27

Figure 5.13: Pillbox Field Landscaping Proposal 28

Figure 5.14: Sizewell Gap / Sandy Lane Road Junction and Route of Outage Car Park Access Track 29

Figure 5.15: CGI Representation of Bollards Used on a Rural Pathway Setting 30

Figure 5.16: Extract of Isoline Plot for Access Pathway 31

Figure 5.17: LHS - Lighting Effect; RHS - Pseudo colour image showing illuminance 32

Figure 5.18: LHS - Image of specified bridge light RHS – Indication of ground-mounted illuminance in section 33

1. INTRODUCTION

- 1.1.1 This document sets out the lighting strategy for specific buildings and infrastructure which constitute the Sizewell B Relocated Facilities project (the 'Proposed Development'). The lighting strategy is informed by operational (end user) requirements which include provision of a safe, flexible and secure work place, and by environmental considerations and constraints which are underpinned by planning policy.
- 1.1.2 The strategy establishes overarching design principles, referencing where applicable best practice guidance; and provides a technical design solution for each facility based on these broad principles. The strategy is focused on the operational lighting design with reference to both internal and external lighting treatment; however, it does not cover temporary construction lighting requirements which are described in the Construction Method Statement.

1.2 Proposed Development Overview

- 1.2.1 The Proposed Development plans to relocate existing Sizewell B Power Station facilities that are currently located to the north of the Sizewell B site and centrally within the existing Sizewell B Power Station itself.
- 1.2.2 As part of the relocation, upgraded facilities will be provided to comply with current regulations and standards. The relocation of the facilities will also facilitate the use of the land on which they are currently located for the possible future Sizewell C Power Station National Infrastructure Project.
- 1.2.3 The planning application is submitted as a hybrid planning application, with the formal description of development as follows:
- In outline, comprising a Visitor Centre (maximum 2,000sq.m GEA) and a maximum of 9,500sq.m (GEA) of floorspace to provide administration, storage, welfare and canteen facilities with all matters reserved apart from access.
 - In full, for the demolition of the existing Outage Store, Laydown Area, Operations Training Centre, Technical Training Facility, Visitor Centre, and Rosery Cottage garage; removal of technical training and pool car park (63 spaces), Coronation Wood car park (21 spaces), Visitor Centre car park (16 spaces) and northern outage car park (576 spaces); meantime use of the Technical Training Centre as an interim Visitor Centre followed by its demolition; and erection of new (all floorspace in GEA) Outage Store (2,778sq.m), Laydown Area (11,990sq.m) including New Western Access Road, Yardman's Office (23sq.m), Training Centre (4,032sq.m), Rosery Cottage garage (30sq.m), Replacement Car Park (2,363sq.m) providing 112 spaces, and Outage Car Park (15,525sq.m) providing (576 spaces) including new access road (and alternative access to bridleway), footpath and amended junction at Sizewell Gap; and associated landscaping earthworks/recontouring, tree felling and boundary treatment.
- 1.2.4 Within the Sizewell B Power Station Security Perimeter, a location has been identified for the proposed Outage Store and an 'Outline Development Zone' has been identified

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for the administration, storage, welfare and canteen facilities. Outside of the Sizewell B Power Station Security Perimeter, locations have been identified for the proposed Training Centre, Visitor Centre, Laydown, Outage and Replacement Car Parks and a new circulatory access road referred to as the Western Access Road.

1.3 Lighting Strategy Areas of Focus

1.3.1 This Lighting Strategy focusses on two key development areas which are located to the south and west of the Sizewell A and Sizewell B power stations (the 'Sizewell Power Station complex') respectively (see **Figure 1.1**). These comprise:

- **Coronation Wood Development:** Proposed Car Park, Laydown Area, Western Access Road, Training Centre and Visitor Centre
- **Pillbox Field:** Outage Car Park and associated vehicular and pedestrian accesses

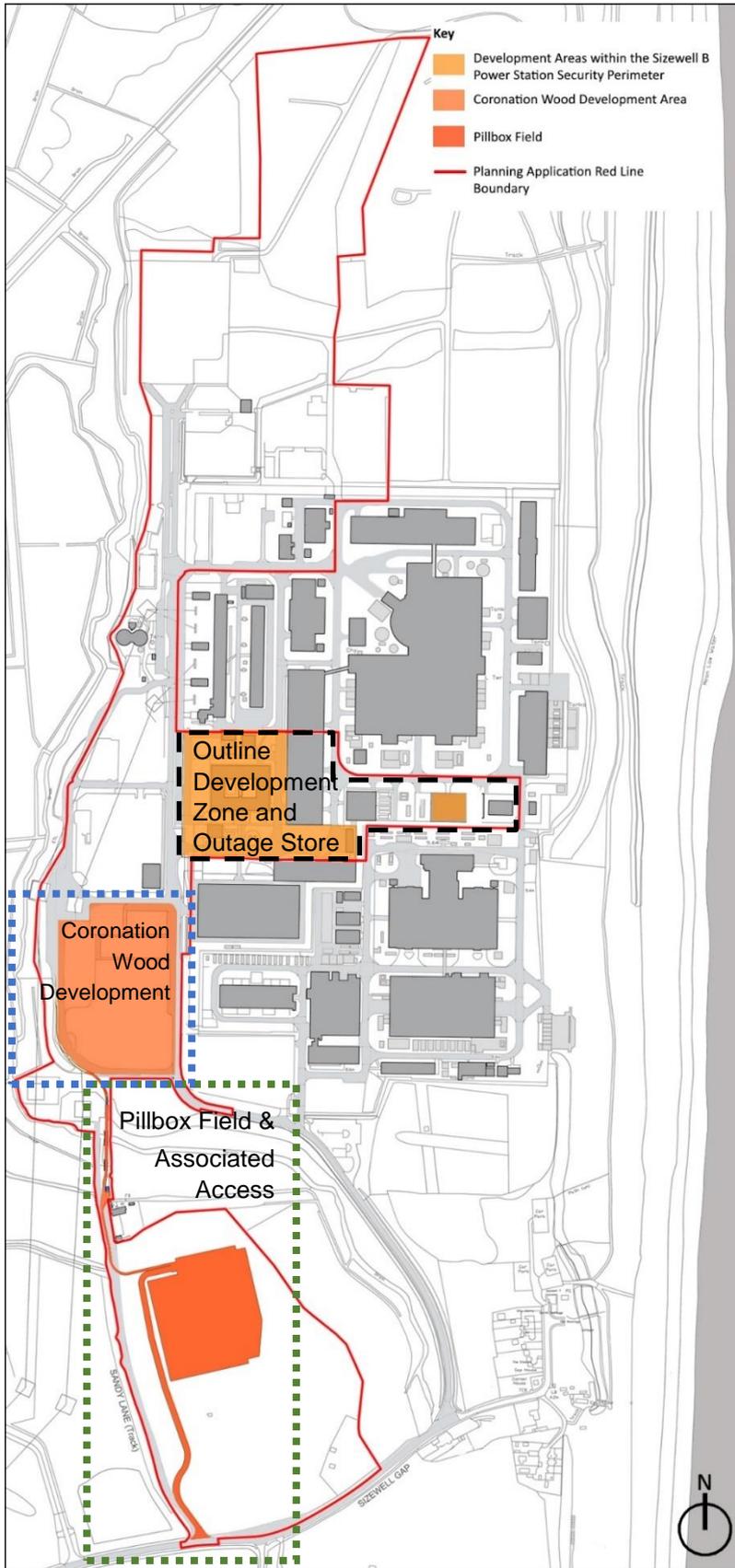


Figure 1.1: Coronation Wood Development and Pillbox Field Setting

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- 1.3.2 A fuller description of the Proposed Development for both areas is included in **Sections 5.3 and 5.4** of this document.
- 1.3.3 These two areas are located outside of the existing Sizewell B Power Station site perimeter (within which there are already high levels of lighting provision) and occupy land within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) and adjacent to the Sizewell Marshes Site of Special Scientific Interest (SSSI). Neighbouring areas also support recreational uses and private dwellings. The need to minimise obtrusive light emissions whilst maintaining a safe, functioning working environment is therefore a primary strategy consideration for both these areas.
- 1.3.4 A full assessment of lighting impacts arising from the Proposed Development is set out in the accompanying **Environmental Statement** which has informed this Lighting Strategy.
- 1.3.5 Finally, a summary on the approach to lighting for the Outline Development Zone and Outage Store (located within the existing Sizewell B Power Station Security Perimeter) is also provided in **Section 5.5**, albeit only internal lighting is required.

2. EXISTING LIGHTING CONTEXT

2.1.1 As a basis for the lighting design on this project, this strategy has defined the Environmental Zones for the two areas in line with **ILP GN01 Guidance Notes for the Reduction of Obtrusive Light** (see **Table 2.1** for specific criteria):

- **Coronation Wood** – Zone E3, Suburban (small town Centres or suburban locations).

This is based on the Site’s proximity to the Sizewell Power Station complex. The Site’s proximity to the AONB and SSSI remains a key factor in how the design has been developed.

- **Pillbox Field** – Zone E1, Natural (National Parks, Areas of Outstanding Natural Beauty, etc).

This categorisation is based on the fact that, unlike Coronation Wood, Pillbox Field is seen in isolation from the existing Sizewell Power Station complex and lies within an undeveloped rural setting (albeit adjacent to the Greater Gabbard and, under construction, Galloper sub-stations), in close proximity to the Sizewell Marshes SSSI.

- **Outline Development Zone and Outage Store** – Zone E4, Urban (Town/city centres with high levels of night time activity).

This is based on the high density of industrial facilities and comprehensive lighting within the existing Sizewell B site perimeter.

Table 2.1: Lighting Pollution Criteria

Area	Environmental Zone	Light Intrusion (into windows) E _{ave} (Lux)		Luminaire Intensity, I (Candelas)		Sky Glow ULR (Max %)	Building Luminance Pre-Curfew
		Pre-curfew	Post-curfew	Pre-curfew	Post-curfew		Average, L [cd/m ²]
Pillbox Field	E1 – Intrinsically dark landscapes	2	0 (1*)	2,500	0	0	0
Coronation Wood Development	E3 - Suburban	10	5	10,000	1,000	5.0	10
Outline Development Zone and Outage Store	E4 - Urban	25	5	25,000	2,500	15	25

2.1.2 A brief description of the existing lighting environment is set out here; consideration of context and baseline conditions is important in informing the design strategy. A comprehensive description of the lit environment and its impact is provided in the accompanying **ES Chapter 7: Landscape and Visual Impact Assessment (LVIA)**.

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- 2.1.3 The Sizewell power station complex is well-illuminated, reflecting operational requirements to maintain a safe, functioning and secure environment at night. Lighting infrastructure is distributed across all operational areas and includes highway lighting, typically as free standing columns; security and operational lighting, comprising free standing columns, mobile flood lighting or building mounted luminaires; and internal building lighting associated with both administrative buildings and operational buildings. In addition to static lighting, the light emitted from moving vehicles within and accessing the Sizewell power station complex is apparent.
- 2.1.4 The removal of Coronation Wood as part of the Proposed Development is a key design consideration. The vegetated boundary which will be maintained along the western and southern Site boundary provides a screen to the existing development and intercepts some light spill.
- 2.1.5 Pillbox Field lies within the AONB and was taken out of agricultural production. The field and adjacent roads (Sizewell Gap) and rights of way on Sandy Lane are not lit. The illuminated buildings of both Sizewell A and Sizewell B Power Stations which rise above perimeter woodland blocks provide a backdrop to Pillbox Field in some views from the south. There are a number of isolated light sources within the neighbouring coastal and agricultural landscape.

3. LEGISLATION, POLICY AND GUIDANCE

3.1.1 The key planning policies which guide the lighting design strategy for the Proposed Development are set out here. This references both national and local planning policy. The design principles set out in **Section 4** of this report indicate how the strategy has responded to policy guidance.

a) National Planning Policy

3.1.2 The **National Planning Policy Framework [Ref. 2]** encourages sustainable development and by encouraging good design. Planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation. It also identifies that pollution is anything that affects the quality of land, air, water or soils, which might lead to an adverse impact on human health, the natural environment or general amenity. Pollution can arise from a range of emissions, including light.

b) Local and Regional Planning Policy and Guidance

3.1.3 Local planning policy and guidance which is most relevant to lighting design and lighting impacts is contained within the following documents:

- Development Management Policy DM26
- Suffolk Coast and Heaths AONB Position Statement-Obtrusive Lighting in the Suffolk Coast and Heaths Area of Outstanding Natural Beauty
- Suffolk Coastal District Local Plan - Core Strategy and Development Management Policies – Development Plan Document: Development Management Policy DM26 – Lighting
- Suffolk Coast and Heaths AONB Management Plan 2013 – 2018 (2013); Suffolk Coast and Heaths AONB Partnership
- Suffolk Landscape Character Assessment

3.1.4 Local planning policy [**Ref. 3 Ref. 4**] recognises the need to deliver well-designed lighting schemes which are suitable for their required purpose and provide the minimum light levels needed for a specific task or use. Policy seeks to ensure that the polluting effects of lighting – manifest in the form of light spill, light glare and sky glow – are addressed through appropriate embedded design including, where appropriate, adoption of control mechanisms and other forms of mitigation. Policy also seeks to safeguard landscape and ecological receptors (as well as human receptors) from impacts of light pollution.

3.1.5 Potential impacts of light pollution on the Suffolk Coast and Heaths AONB is an important consideration. The **AONB Management Plan [Ref. 5]** establishes that the lack of light pollution (amongst other factors) is a key contributor to the special character of the area; similarly, the low light pollution levels which give rise to predominantly dark skies within the AONB are recognised as an indicator of tranquillity. The AONB Position Statement on obtrusive lighting [**Ref. 6**] does not preclude lighting as part of development in the AONB but seeks to ensure that lighting is kept to a

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minimum and is appropriate to its purpose. The Position Statement also points to industry guidance to inform lighting design (this is discussed in the following section).

4. DESIGN DRIVERS AND PRINCIPLES

4.1.1 This section sets out the design drivers for the lighting proposals and establishes a set of high level design principles which have informed the design development process.

4.2 Design Drivers

4.2.1 The design drivers which feed into the design principles are set out below. These drivers are focussed on ensuring that tasks which require lighting can be undertaken in a safe manner; that light pollution is controlled as far as practicable and that the scheme is as sustainable as possible in terms of energy consumption, maintenance and cost.

- Facilitate safe and efficient use of the space;
- Facilitate efficient and effective security monitoring of space;
- Minimise obtrusive light spill into sensitive landscape and ecological areas;
- Minimise the energy consumption of the installation;
- Minimise maintenance requirements of installation; and,
- Minimise the life cost of delivering the above.

4.3 Design Principles

4.3.1 These principles are cognisant of the requirements set out in planning policy which seek to deliver good and efficient design and minimise obtrusive light on landscape, visual and ecological receptors. They are also aligned with specific operational requirements which ensure lighting is suitable for its purpose and creates a safe working environment.

a) External lighting design

- Set lighting away from the Site boundaries as far as practicable to minimise light spill into the neighbouring landscape;
- Minimise the mounting height of the luminaires and any tilt angles; try to maintain horizontal mounting arrangements of luminaires;
- Provide luminaires of the flat glass construction with zero direct upward light, to reduce sky glow and glare from the luminaires;
- Provide luminaires with good optical control and sharp cut-off to minimise the reflectance from buildings;
- Provide luminaires of as low a wattage and mounting height as practically possible;
- Minimise the mounting of luminaires to illuminate the fascia's of buildings;
- Where practicable, direct lighting into the Site rather than directing light outwards – this will need to consider the specific security requirements and provisions;

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- Where luminaires may be mounted on buildings roofs illuminating the immediate roof area/plant and escape/exit doors, provide cowls/shields to the luminaires to minimise any direct light spill or direct views of the luminaires;
- Consider where necessary the switching off of the lighting installation to reduce the impact of the Site lighting on the wider environment and energy usage;
- If necessary, provide asymmetric lighting, or cowls/baffles to reduce light spill or direct views of the light source from outside the Site; and,
- Where practicable, provide additional screening within the Site to minimise light spill into the neighbouring landscape. This may include appropriate fencing or vegetation screening.

b) Internal lighting design

- Internal building areas requiring lighting should, as far as practicable, be at a level below the retained tree lines on the western boundary to maximise the screening function of this vegetation;
- As far as practicable, minimise the extent of windows (and internal lighting) on western elevations to reduce visibility of lights from surrounding areas beyond the Site boundary;
- Consider, where necessary, the switching off of the lighting installation to reduce the impact of the Site lighting on the wider environment and energy usage;
- Provide luminaires of as low a wattage as practically possible;
- Consider use of louvres or blinds (including automated systems) to intercept light spill from visible windows; and,
- Internal lights fixtures should be designed to minimise the time working at height.

5. DESIGN SOLUTION OVERVIEW

5.1.1 This section describes the proposed solutions for the Coronation Wood and Pillbox Field areas based on work undertaken in the Concept Design Stage. In addition to describing the proposed design solution, design options that were considered but not adopted are also recorded. This is in order to ensure the rationale and justification of the lighting proposal is fully documented. The detailed lighting design shall be in accordance with the technical specifications detailed in the appendices of this document.

5.2 External Design Solution Light Sources and Luminaires

5.2.1 Lighting for all the external redeveloped areas will be delivered from LED sources. LED sources have been selected as they provide more precise light control than alternative sources (such as Sodium lamps) in addition to their increased efficiency and longevity. This will facilitate reductions in upward light spill and views of light sources, which is a key factor to minimising light pollution into the SSSI. demonstrates the benefits of using LED sources in controlling light spill.

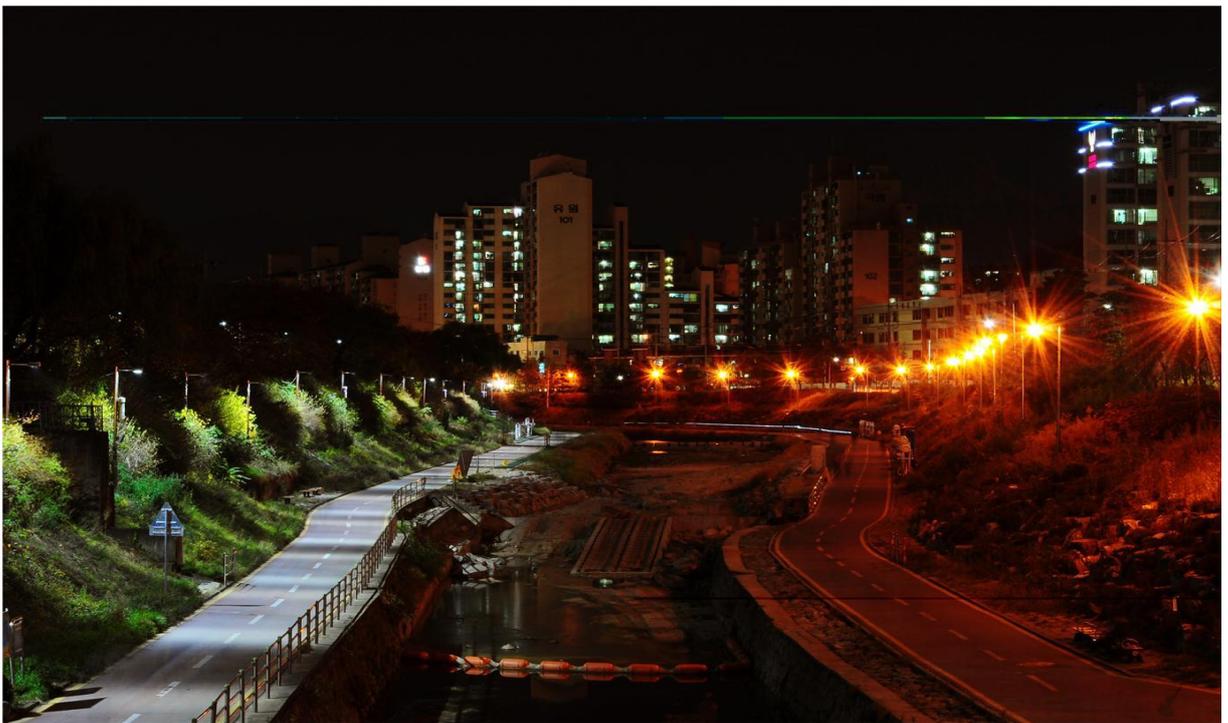


Figure 5.1: LED (left hand side) and Sodium (right hand side) Light Sources for Comparison

5.2.2 The equipment efficiency target proposed is challenging, but facilitates mid-range equipment selections from all the major manufacturers. Lighting equipment will deliver 'good' colour rendering (rather than 'excellent') being at least RA70. This will enable the installation efficiency to be increased whilst still providing light quality that is fit for purpose. The light colour will be neutral white (4000K) – warm white (3000K) to best match the incumbent lighting stock on the Site.

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5.2.3 Luminaires will be selected to reflect the environment they are located in, and the activities undertaken about them. The luminaires' optical system shall not allow any direct light above the horizontal plane (Full Cut-off and Cut-Off in **Figure 5.3**); this will reduce light pollution into the adjacent areas but also improve the efficiency of the installation by lessening wasted light. The external equipment will be highly water resistant and will offer impact resistance.

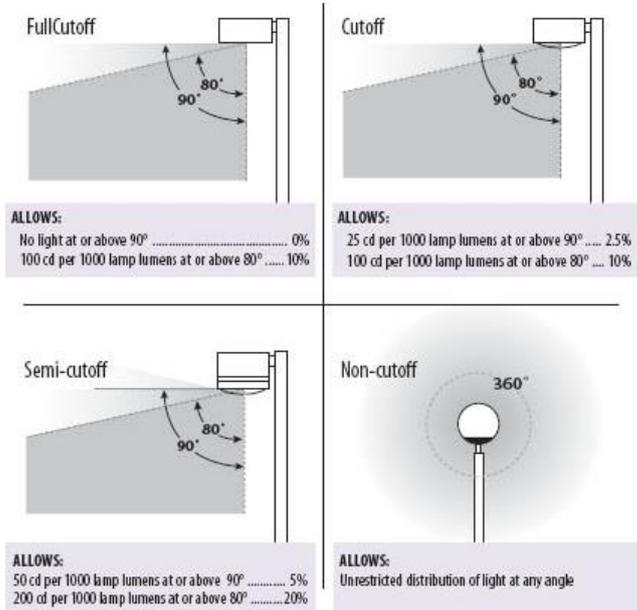


Figure 5.2: Horizontal Plane Light Cut-Off Proposed for Lighting Solutions (Full Cut-Off)

5.2.4 Luminaires will generally be asymmetric (i.e. an unequal distribution about one or more axes). Asymmetric lighting minimises the light levels in a particular direction (as shown by the example in **Figure 5.3**), and is considered a more efficient, best-practice approach to minimising light spill into adjacent areas, rather than specifying traditional mitigation measures such as baffles/cowls.

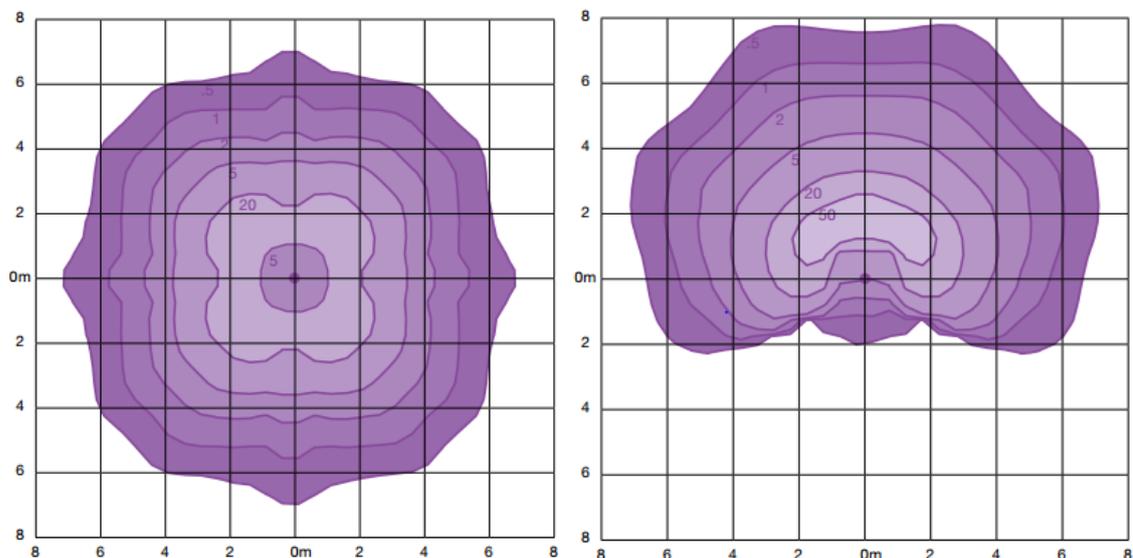


Figure 5.3: Example of Isolux Plots for Symmetric (LHS) and Asymmetric Luminaires (RHS)

5.3 Coronation Wood Development Overview

- 5.3.1 The Coronation Wood Development will compromise the Western Access Road, permanent car parking areas (main Proposed Car Park including for the Training Centre and Visitor Centre), the Laydown Area, and Training Centre and Visitor Centre buildings, as well as associated pedestrian routes (see **Figure 5.4** and **Figure 5.5**).
- 5.3.2 The laydown area is intended to be used in both operational and outage periods. The Coronation Wood Development Area is located at the South-West perimeter of the existing Sizewell B power station and therefore mostly seen against the backdrop of the existing Sizewell power station complex buildings. A portion of the Site is underneath overhead lines and therefore subject to height restrictions.

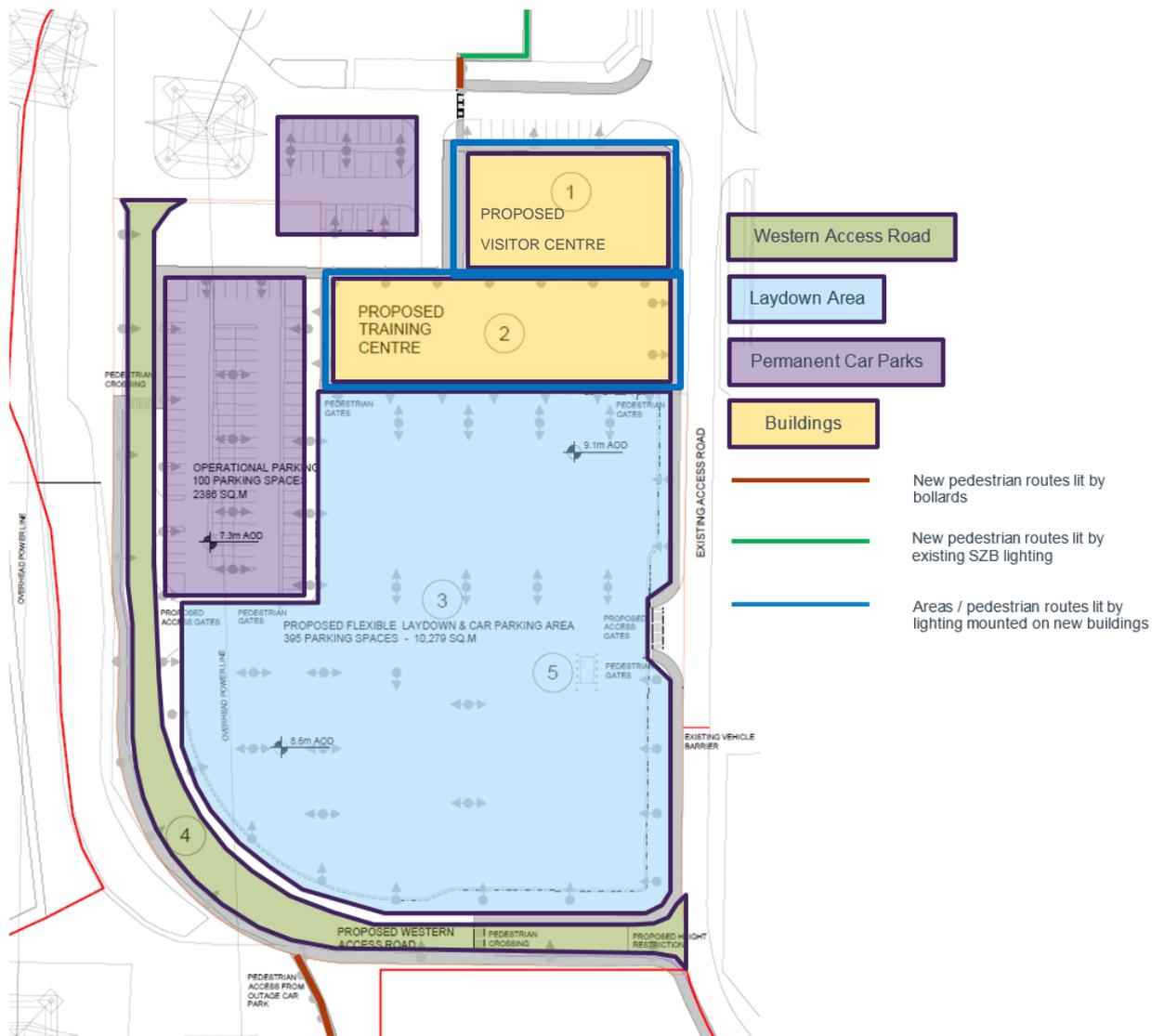


Figure 5.4: Plan of the Coronation Wood Development Area



Figure 5.5: CGI Representation of the Proposed Coronation Wood Development

5.3.3 The proposed activities and key design drivers for the external areas in the Coronation Wood Development are set out in **Table 5.1**.

Table 5.1: Proposed Activities and Design Drivers for Coronation Wood Development External Areas

Area	Proposed Activities	Key Lighting Design Considerations
Laydown Area	<p>Required to accommodate a range of activities. The principal period of activity in the Laydown Area will be during plant outages or development / construction projects but some items will be stored permanently. Occasional out-of-hours (including 24-hour) working will be required, principally during plant outages.</p> <p>Activities within the Laydown Area may include:</p> <ul style="list-style-type: none"> • Bulk material storage/ sorting • Scaffold, transformer, and spares laydown • Turbine hood storage • Fabrication, including temporary cover • Mobile workshops (containerised units or similar) • ISO container laydown (limit 6m stacked) 	<p>Provide sufficient lighting to undertake required tasks in a safe and secure manner.</p> <p>Minimise light pollution in the AONB and into SSSI, and visual impact of lighting scheme.</p> <p>Provide a comprehensive lighting control system to ensure that: areas of the laydown not being used at that time can be switched off; and, areas that are being used have the ability to increase the task lighting.</p> <p>Maximise the flexibility of the Laydown Area by minimising the permanent fixtures (e.g. lighting columns).</p>

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Area	Proposed Activities	Key Lighting Design Considerations
	<ul style="list-style-type: none"> Temporary accommodation/office. (limit 6m-stacked) Skips- non contaminated construction waste Plant storage and parking and use (forklift, telehandler, mobile crane, tractor) HGV overnight/ parking Contractor/ visitor Parking overflow 	Proximity of 400kV overhead lines in western extent of the laydown.
Western Access Road	Route for vehicular traffic	<p>Provision of sufficient lighting levels outside of daylight hours to comply with relevant road standards.</p> <p>Minimise light pollution in the AONB and into SSSI, and visual impact of lighting scheme.</p> <p>Proximity of 400kV overhead lines in western extent of the laydown.</p>
Car Parks	Car parking for users of the Coronation Wood buildings, because principally users will have regular vehicles (cars).	<p>Provision of sufficient lighting levels outside of daylight hours to comply with relevant standards.</p> <p>Proximity of 400kV overhead lines in western extent of the laydown.</p>
Pedestrian Routes	Pedestrian access along designated walkways, paths and circulation routes to/from/within the Coronation Wood Development.	<p>Provision of sufficient lighting levels outside of daylight hours to comply with relevant standards.</p> <p>Minimise light pollution into SSSI and visual impact of lighting scheme.</p>

5.3.4 A summary of the Coronation Wood Development lighting design solution for each area is presented in **Table 5.2**. The detailed lighting plan, performance specification and lighting calculation isolux plots are included in the appendices of this document.

Table 5.2: Proposed External Lighting Solutions for Coronation Wood Development

Area	Proposed Solution	Example of Proposed Optic
Laydown Area	<p>Illuminated to 100 lux, dimmable to 20 lux.</p> <p>Asymmetric lanterns mounted on a combination of 8 metre and 4 metre columns (4m columns within the areas constrained by the proximity of the 400kV overhead power lines).</p> <p>Lighting of laydown area to be specific to the tasks being undertaken at the</p>	 <p>Holophane or similar</p>

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Area	Proposed Solution	Example of Proposed Optic
	<p>time (noting that there are a range of activities that could be undertaken within this location).</p> <p>Task lighting to be localised and controlled to provide sufficient levels to undertake the activity in hand, prioritising safety and security.</p> <p>Lighting in areas with no activity have the means to be (and is likely to be) switched off.</p>	
<p>Western Access Road</p>	<p>Illuminated to 7.5 lux.</p> <p>4 metre columns with Road Optic.</p> <p>Automatic switching of the installation based on time and daylight availability.</p> <p>Lux levels to always be maintained to minimum levels required for road usage.</p>	 <p>Holophane or similar</p>
<p>Car Parks</p>	<p>Illuminated to 20 lux.</p> <p>Asymmetric lanterns mounted on 4 metre columns.</p> <p>Automatic switching of the installations based on time and daylight availability.</p> <p>Lux levels to always be maintained to minimum levels required for uncovered parking areas.</p>	 <p>Holophane or similar</p>
<p>Pedestrian Routes</p>	<p>Illuminated to 20 lux.</p> <p>Lighting sources for new pedestrian routes will depend on their locations within the development area.</p> <p>The route from Pillbox Field will be lit by bollards on the walkways and surface-mounted lights over the footbridges – when the Outage Car Park is not in use, this route will not be lit.</p>	

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Area	Proposed Solution	Example of Proposed Optic
	<p>Bollards will also be used to light the steps down to the Western Car Park.</p> <p>The route alongside the Western Access Road will be lit by the road lighting itself. Pedestrian crossings will have lighting columns positioned in close proximity to provide minimum required levels as per relevant standards.</p> <p>The routes around the Training Centre and Visitor Centre will be lit by lighting mounted externally on these buildings which will have automatic switching of the installation based on time and daylight availability.</p> <p>The route provided through the south-east corner of the Western Car Park will be illuminated by the existing lighting columns within the car park.</p>	<p>Thorlux Probe XL or similar</p> 

a) Laydown Area Design Considerations and Alternative Options

- 5.3.5 The Laydown Area proposed lighting solution has been developed to respond to the design considerations previously listed. The solution allows for the maximum flexibility in use of the area, whilst minimising the impact to the SSSI and within the wider AONB.
- 5.3.6 Lighting calculations have been carried out to assess the likely effect of task lighting on the surrounding area. The Laydown Area has been modelled as illuminated to: 20 lux (minimum level for uncovered parking areas), 50 lux and 100 lux, with roads lit to 7.5 lux, walkways lit to 20 lux and car parks lit to 20 lux. Detailed performance specifications are included in the appendices of this document. To provide some context for the 100 lux maximum task lighting illumination level, the required average illumination level for a top flight football pitch is 500 lux. It is considered unlikely that the Laydown Area will be illuminated at the maximum levels for a concerted period of time outside of outages.
- 5.3.7 The calculations show that there is no direct light emitted above horizontal (as expected based on the specification of the luminaires). As luminaire tilts are limited to 5 degrees, there will be no glare from luminaires beyond the Site. Light spill at ground level to 0.5lux has been calculated – this is the equivalent level to a scene illuminated by starlight. As expected, as the Laydown Area brightness increases the 0.5 lux perimeter expands. At 100 lux the maximum distance of 0.5 lux from the Site perimeter is 50m, this reduces to 30m lux at 50 lux and 20m at 20 lux.
- 5.3.8 However, with any illumination option there is no light spill beyond the local SSSI site boundary, as can be seen by the isoline plot extracts in **Figure 5.6** (full plots can be found in the appendices).

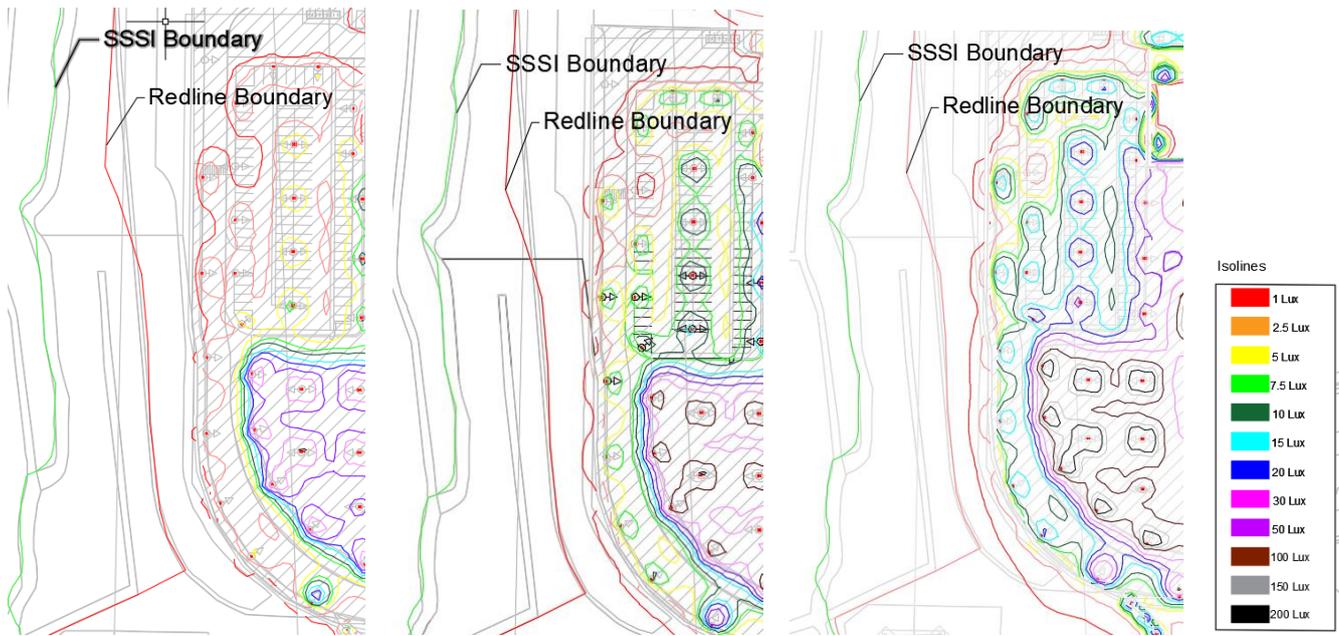


Figure 5.6: LHS – Isoline Calculation Result Extract for Laydown Area at 20% output; Middle - 50% output; RHS - 100% output

5.3.9 Alternative lighting options considered for the Laydown Area are listed in **Table 5.3**.

Table 5.3: Alternative Laydown Area Lighting Options Considered

Alternative	Considerations	Examples
Temporary Lighting Columns	<p>A temporary-only lighting design was ruled out as it is recognised that certain equipment will be permanently stored in the Laydown, and therefore the design needed to deliver sufficient lighting for safe and secure operations on an ongoing basis.</p> <p>As such, a laydown design using a combination of temporary and permanent columns was considered. The proposed concept was to create a basic arrangement of permanent columns delivering a minimum required lighting level for safety and security. Supplementary, temporary columns would then be erected when additional task lighting was required. This solution could be delivered using temporary luminaires supplied with dedicated generators or temporary columns contacted to a permanent infrastructure.</p> <p>This solution was ruled out due to high impacts to working practices (onerous on storage, maintenance, placement, availability, risk of spillages during re-fuelling) and the potential increased risk of impact to the SSSI and wider AONB (incorrectly positioned luminaires could be inadvertently directed towards the SSSI, whereas fixed luminaires would not pose such a risk in this regard).</p>	<p>The 'Examples' column contains two photographs. The top photograph shows a temporary lighting column, which is a white trailer-mounted unit with a tall pole and multiple light fixtures. The bottom photograph shows a permanent fixed luminaire, which is a black pole with a light fixture, situated in a grassy area with trees in the background.</p>

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Alternative	Considerations	Examples
Raise and Lower Columns	<p>The feasibility of using collapsible columns was reviewed, so that lighting equipment could be lowered when not required. This was ruled out as it was considered to be an ineffective solution - the collapsed columns would occupy large quantities of space making the area unusable and unsafe.</p> <p>Furthermore the hinged columns are not intended to be lowered for long periods and are therefore only adequately weather tight when erected.</p>	
Permanent, Static, 4 metre columns	<p>An installation composed of low height permanent columns was assessed (4m is a standard industry column height).</p> <p>A potential advantage to this option was that it could offer a solution in which the system was available to be used immediately and had a lower impact to the surrounding environment (as the columns would be low relative to the remaining vegetation).</p> <p>This solution was not further developed as assessments showed that the low column height would severely limit maximum column spacing resulting in an inefficient use of the laydown area due to the high quantities of luminaires.</p> <p>Conversely, in order to achieve a reasonable spacing the lantern heads would need to be excessively tilted from horizontal which would result in unacceptable light spill into the SSSI.</p>	
Permanent, Static, 6 metre columns	<p>As a design development from the 4m columns, 6m columns (again, standard industry height) were modelled outside of the overhead power lines constrained areas. As expected, increasing the column height resulted in a reduction to the numbers of columns as they could be spaced further apart.</p> <p>Regarding their visual impact, 6 m columns would be more visible from off site, however the 4m columns are unlikely to be shielded from view by existing vegetation. As such, the decision to use 8m columns was taken as this maximised the column spacing (and minimise number of columns) and therefore the laydown flexibility, without significantly adding to the visual impact of the 4m or 6m options.</p>	

b) Western Access Road Design Considerations and Alternative Options

- 5.3.10 The Western Access Road lighting solution has been developed in line with the design considerations listed previously. 4m columns deliver the minimum required illumination to the road (and pedestrian walkways) whilst ensuring sufficient clearance from the 400kV overhead power lines. The asymmetric luminaires specified will ensure that light spill behind the fixtures towards the SSSI will be minimised. Safety and security are the key design drivers for the road lighting. The road lights will be automatically controlled to turn on outside of daylight hours.
- 5.3.11 As indicated in **Figure 5.7**, the western extent of the Coronation Wood Development will include a 2m high hit-and-miss timber fence. This fence will provide a physical barrier to prevent light pollution into the wider AONB and SSSI from oncoming moving vehicle headlights.

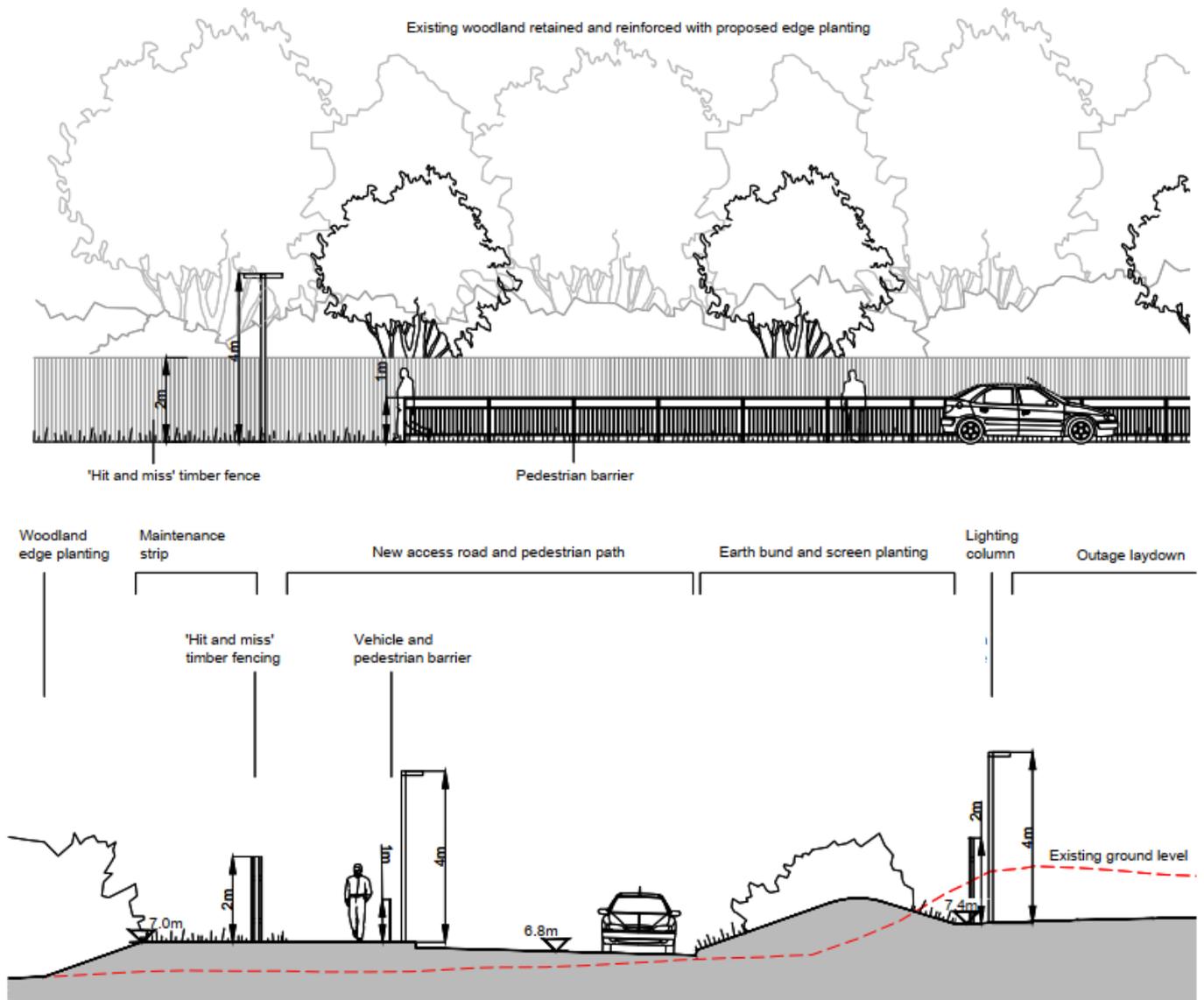


Figure 5.7: Elevation and Section of Proposed Coronation Wood Design in Vicinity of the Western Access Road

Table 5.4: Alternative Western Access Road Lighting Options Considered

Alternative	Considerations	Examples
No alternative options considered – the road safety requirements, alongside the constraints of the overhead power lines has led to the proposed design solution.		

c) Car Park Design Considerations and Alternative Options

5.3.12 The Proposed Car Park lighting solution has been developed in line with the design considerations listed previously. 4m columns deliver the required illumination for uncovered car park usage whilst ensuring sufficient clearance from the 400kV overhead power lines. The predominant type of vehicle using the car parks will be standard cars, so 4m columns will provide sufficient light in the vehicle circulation routes when the car parks are full.

Table 5.5: Alternative Car Park Lighting Options Considered

Alternative	Considerations	Examples
No alternative options considered – the constraint of the overhead power lines and requirement for permanent lighting has led to the proposed design solution.		

d) Lighting Considerations for Buildings within the Coronation Wood Development

5.3.13 The visual impact of lighting from the proposed Training Centre and Visitor Centre is discussed here. Whilst the two buildings are at different stages of design development (the Training Centre to detailed planning stage and the Visitor Centre to outline), in relation to the buildings, the proposed Coronation Wood layout and building orientations have been informed by the design drivers listed in **Section 4.3**. A representation of the two buildings can be seen in **Figure 5.8**.

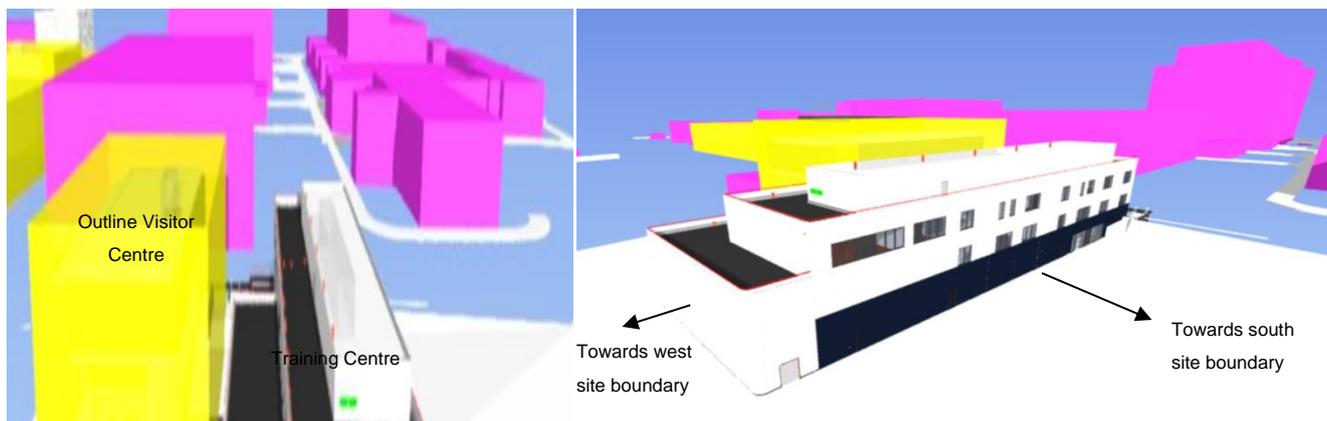


Figure 5.8: Model of the Training Centre in Relation to the Outline Visitor Centre

5.3.14 To address the potential of light spill into the adjacent SSSI and AONB and general lighting visual impact, the following measures have been taken:

5.3.15 Both buildings have been orientated so that their shorter facades face the western site boundary (which is closest in proximity to the SSSI, and also likely to be more prominent in off-Site viewpoints regarding light impact). The façade of the Training

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Centre has been designed without windows, thus eliminating the potential of light spill. The design for the Visitor Centre is yet to be developed, however it would plan to minimise windows on the upper floors of the building recognising the sensitivities of introducing light sources at higher levels (and feasibly the lower levels too), and then look at possible mitigation options (louvres or similar). **Figure 5.9** indicates considerations for the western elevations of both buildings.

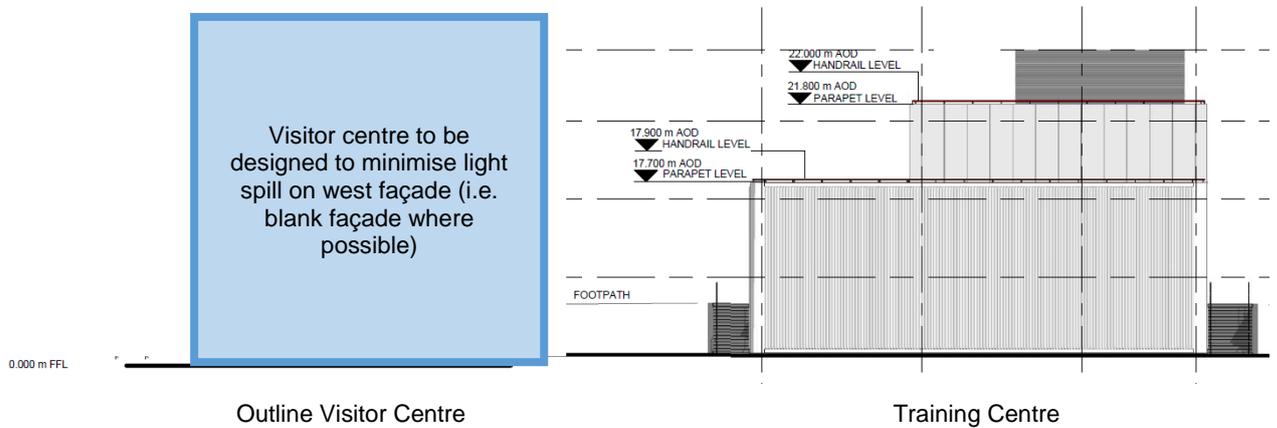


Figure 5.9: Training Centre (RHS) and adjacent Visitor Centre (Outline) Western Elevation

- Light spill from the south façade of the Training Centre's internal lighting will also add to the lighting visual impact of the building. As such, mitigation measures such as motion sensors and blinds are proposed to be incorporated into the design – this will ensure that the impact of lighting from within the buildings is controlled.
- Views of the Visitor Centre's south façade will generally be blocked by the Training Centre.
- Lights mounted externally will generally be to provide light for pedestrian circulation routes. These lights will be positioned as low as is feasible to provide the necessary lighting levels, whilst being positioned to minimise glare towards the west and south Coronation Wood site boundaries.

5.4 Pillbox Field

- 5.4.1 Pillbox Field is to be the location for a proposed Outage Car Park for Sizewell B power station. The Outage Car Park will provide spaces for 576 vehicles. Vehicles will access the car park from the south via the existing but modified junction from Sizewell Gap onto Sandy Lane. Past this junction, vehicles will turn into Pillbox Field along the Outage Car Park access track, and will enter the car park area on the north-west side.
- 5.4.2 Pedestrians will then access the main Coronation Wood Development (as detailed in **Section 5.3**) via a footpath and via footbridges to cross a watercourse.
- 5.4.3 The Outage Car Park is only to be used during outages, when the station operates a 12 hour shift pattern. There will therefore be high volumes of traffic entering and exiting the car park twice a day during the outage period. It is important to carefully consider the lighting scheme in the context of these concentrated periods of pedestrian and

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vehicle movements. Conversely, the lighting scheme and any mitigation needs to be sensitive to the current rural nature of the Site within the AONB, and cognisant of the close proximity to the SSSI boundary which the pedestrian footpath runs close to on either side.

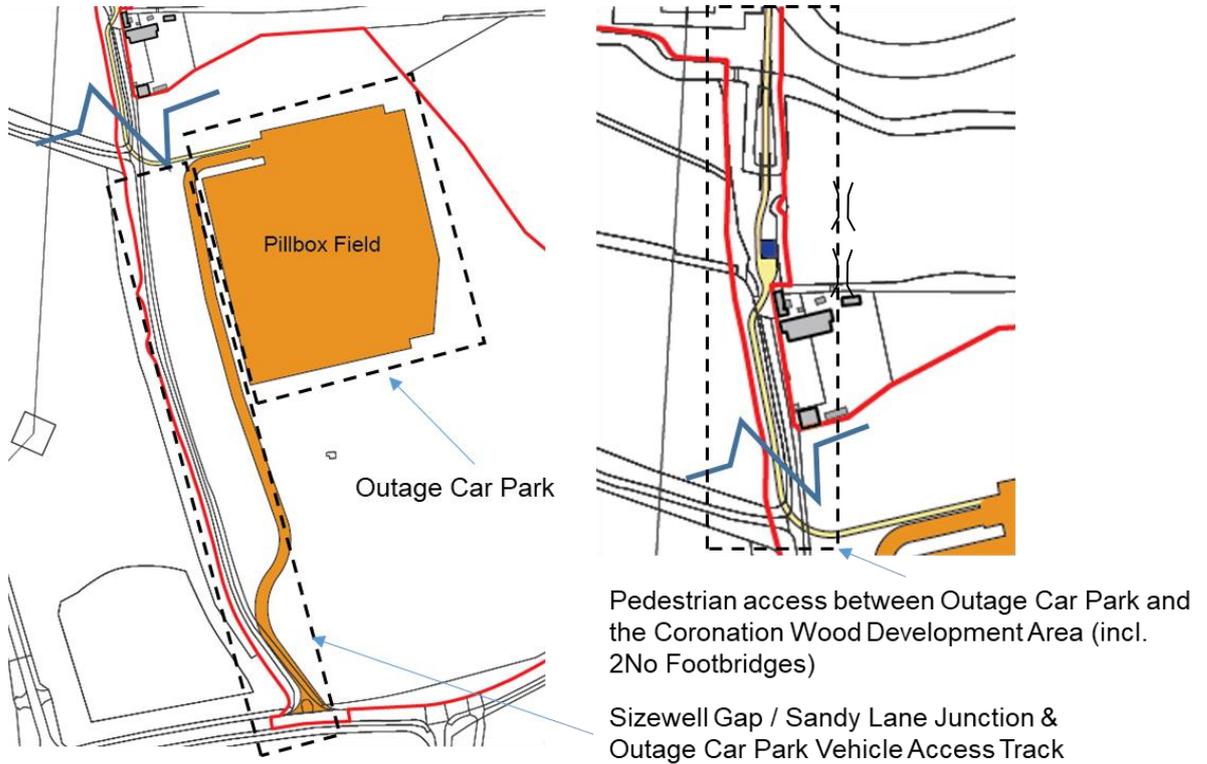


Figure 5.10: Pillbox Field Proposed Outage Car Park Plan



Figure 5.11: CGI Representation of Pillbox Field Design

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5.4.4 The proposed activities and key design drivers for the Pillbox Field areas are set out in **Table 5.6.** complex

Table 5.6: Proposed Activities and Design Drivers for Pillbox Field

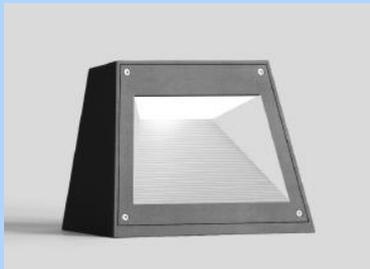
Area	Proposed Activities	Key Lighting Design Considerations
Outage Car Park	Parking for vehicles during outages only. The typical vehicles using the car park are more likely to be commercial vans than standard cars. Vehicle movements will be significant at shift changeover.	Pedestrian safety. Visual impact of solution in the context of the AONB. Certainty of the availability of lighting solution in the case of an unplanned outage - vary occasionally but are, in their nature, not forecastable.
Sandy Lane / Sizewell Gap Road Junction and route to car park access track	Vehicular access from the public road into the Outage Car Park. This junction marks the start of a public bridleway along Sandy Lane. Vehicle access to Rosary Cottages.	Non-vehicular user safety (horses, cyclists, pedestrians). Vehicular safety.
Footpath between Outage Car Park and Coronation Wood Development	Outage workforce pedestrian route to Sizewell B Power Station Site (linking to Coronation Wood Development).	Pedestrian safety. Minimising light spill due to close proximity of the SSSI on both sides of the pathway.
Footbridges	Outage workforce pedestrian route to Station over watercourses.	Pedestrian safety. Minimising light spill into watercourse.

5.4.5 A summary of the Pillbox Field lighting design solution for each area is presented in **Table 5.7.** The detailed lighting plan and lighting calculation isolux plots are included in the appendices of this document.

Table 5.7: Proposed External Lighting Solutions for Pillbox Field

Area	Proposed Solution	Example of Proposed Optic
Outage Car Park	Illuminated to 20 lux. Asymmetric lanterns mounted on 6 metre columns. Automatic switching of the installations based on time and daylight availability, but lights will have central control to be switched off outside of outages. When in use, lux levels to be maintained to minimum levels required for uncovered parking areas.	 <p>Thorlux Starguard or similar</p>
Sandy Lane / Sizewell Gap Road Junction and Access Track	Proposed to be unlit.	N/A

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Area	Proposed Solution	Example of Proposed Optic
Footpath between Outage Car Park and Coronation Wood Development	<p>Illuminated to 20 lux.</p> <p>1 metre high asymmetric lighting bollards.</p> <p>Automatic switching of the installations based on time and daylight availability, but lights will have central control to be switched off outside of outages.</p> <p>When in use, lux levels to be maintained to minimum levels required for pedestrian footpaths.</p>	 <p>Thorlux Probe XL or similar</p>
Footbridges	<p>Illuminated to 20 lux.</p> <p>On-ground luminaire.</p> <p>Automatic switching of the installations based on time and daylight availability, but lights will have central control to be switched off outside of outages.</p> <p>When in use, lux levels to be maintained to minimum levels required for pedestrian footpaths.</p>	 <p>BEGA or similar</p>

b) Outage Car Park Design Considerations and Alternative Options

- 5.4.6 A number of options were reviewed in detail for the Outage Car Park lighting, before the concluding on the 6m permanent column solution. These options are summarised in **Table 5.8**.

Table 5.8: Alternative Outage Car Park Lighting Options Considered

Alternative	Considerations	Examples
No Lighting	<p>The starting point for the lighting options was to challenge whether or not any lighting was required in the first place i.e. minimum visual impact.</p> <p>The main consideration for this was the pattern of car park usage - close to 600 vehicles will use this car park, and the usage pattern would be highly concentrated to the timing of the shift change over (leading to significant vehicle movements).</p> <p>Vehicle users are likely to access equipment from their vehicles (standing in the vehicle circulation areas when opening car/van boots), as well as walking to the footpath to gain access</p>	N/A

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Alternative	Considerations	Examples
	to the main site. On the grounds of pedestrian safety, the no lighting option was ruled out.	
Temporary Columns	<p>Recognising that the outage car park would be used infrequently (for up to three months every 18 months for planned outages but also for unplanned outages), consideration was given to a temporary lighting solution in order to minimise visual impact.</p> <p>A temporary solution presents similar challenges to those considered in Coronation Wood - high impacts to working practices (onerous on storage, maintenance, placement, availability, risk of spillages during re-fuelling) and the potential increased risk of impact to the AONB and SSSI (incorrectly positioned luminaires could be inadvertently directed towards the SSSI, whereas fixed luminaires would not pose such a risk in this regard).</p> <p>The assurance of availability of a temporary column solution was one of the key factors in ruling this option out.</p>	
Raise and Lower Columns	<p>Similar to Coronation Wood, the feasibility of using collapsible columns was reviewed, so that lighting equipment could be lowered when not required – this would have the benefit of reducing visual impact when the car park was not in use.</p> <p>This was ruled out as the hinged columns are not intended to be lowered for long periods and are therefore only adequately weather tight when erected. They could pose a health and safety risk to workers carrying out any maintenance work on the car park when in their lowered state.</p>	
Permanent, 1m Lighting Bollards	<p>Minimising the visual impact of a permanent lighting solution led to the option of 1m lighting bollards being considered.</p> <p>The lighting output of the bollards was shown to be limited when modelled (as expected because a car park would not normally be a design application for this type of luminaire).</p> <p>The issue was shown to be more significant when modelling a line of parked vehicles – zero lighting levels were predicted in the vehicle circulation lanes. This solution was therefore ruled out on the grounds of pedestrian safety.</p>	

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Alternative	Considerations	Examples
Permanent, Static, 4 metre columns	<p>As the design options moved towards a permanent installation, the option of very low height permanent columns was assessed (4m is a standard industry column height).</p> <p>Larger column spacing was not a design driver as it was for the Laydown Area in Coronation Wood. A potential advantage to this option was that it could offer a solution in which the system was available to be used immediately.</p> <p>The solution was not adopted on the grounds of pedestrian safety based on the low light levels modelled in the vehicle circulation lanes (see further detail in main body of this report).</p>	

- 5.4.7 Once the decision was taken to introduce a permanent solution, one of the key design considerations was linked to the type of vehicles expected to use the car park. In comparison to the Operation Car Park in Coronation Wood, it is much more likely that the majority of vehicles using the Outage Car Park will be commercial vans.
- 5.4.8 There will be high levels of vehicle movements at shift change over, and vehicle users are likely to access equipment from their vehicles (standing in the vehicle circulation areas when opening car/van boots/doors). This led to a requirement for sufficient lighting of the vehicle circulation lanes to ensure that pedestrians can be seen at a distance by oncoming traffic.
- 5.4.9 The concentrated vehicle usage coupled with the likely large number of tall vans meant that of the permanent lighting options assessed (1m bollards, 4m lighting columns, and 6m lighting columns), only the 6m columns provided sufficient light levels in the vehicle circulation lanes. Lighting calculations have modelled a line of vans to demonstrate the lighting levels in this scenario, but the options are pictorially represented in **Figure 5.12**.

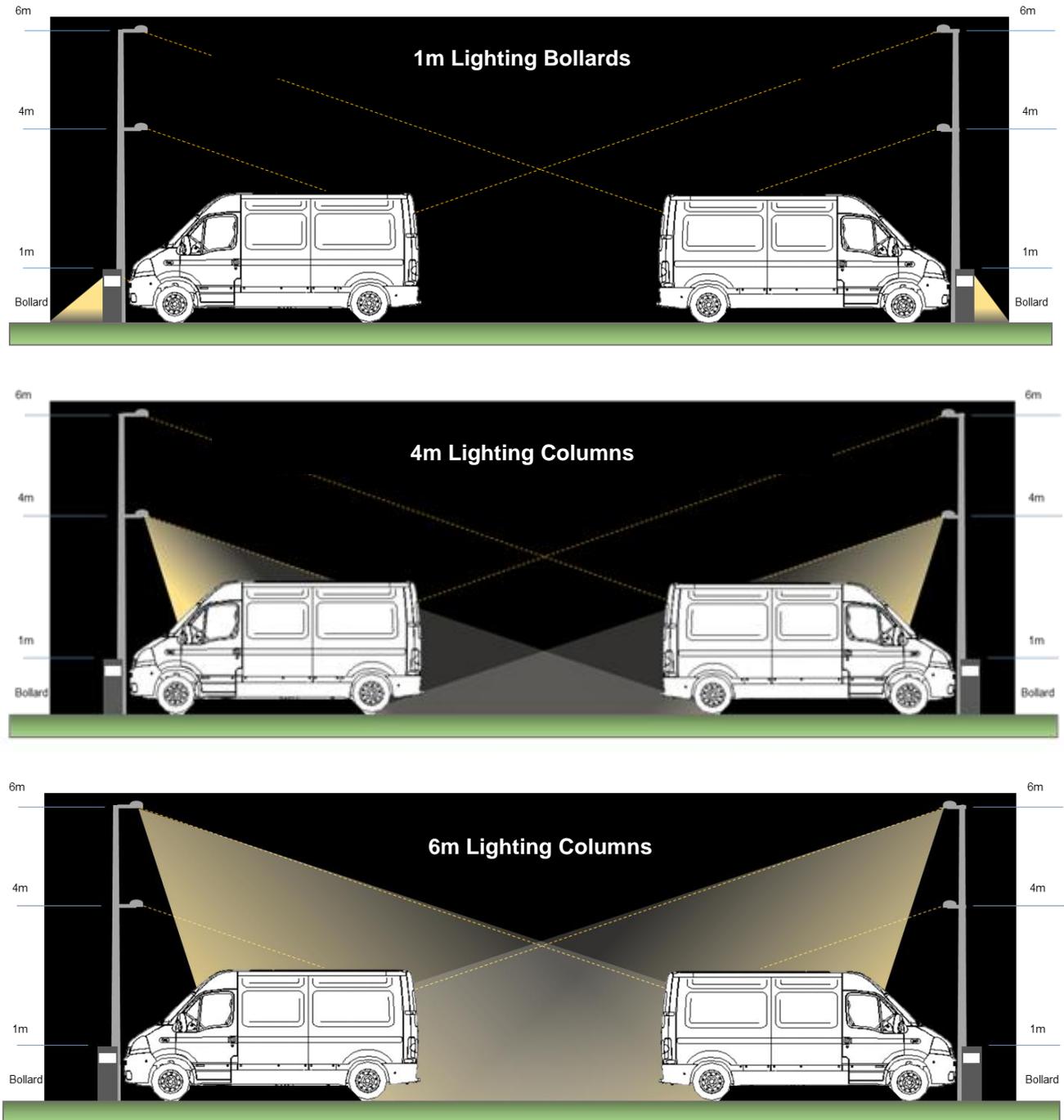


Figure 5.12: Permanent Outage Car Park Lighting Options Considered

5.4.10 The landscaping design for Pillbox Field has responded to the Outage Car Park surface level and proposed lighting solution. A proposed woodland and heathland scrub planting scheme (as shown in **Figure 5.13**) is intended to provide a screening function for the car park and the permanent lighting features when in use.

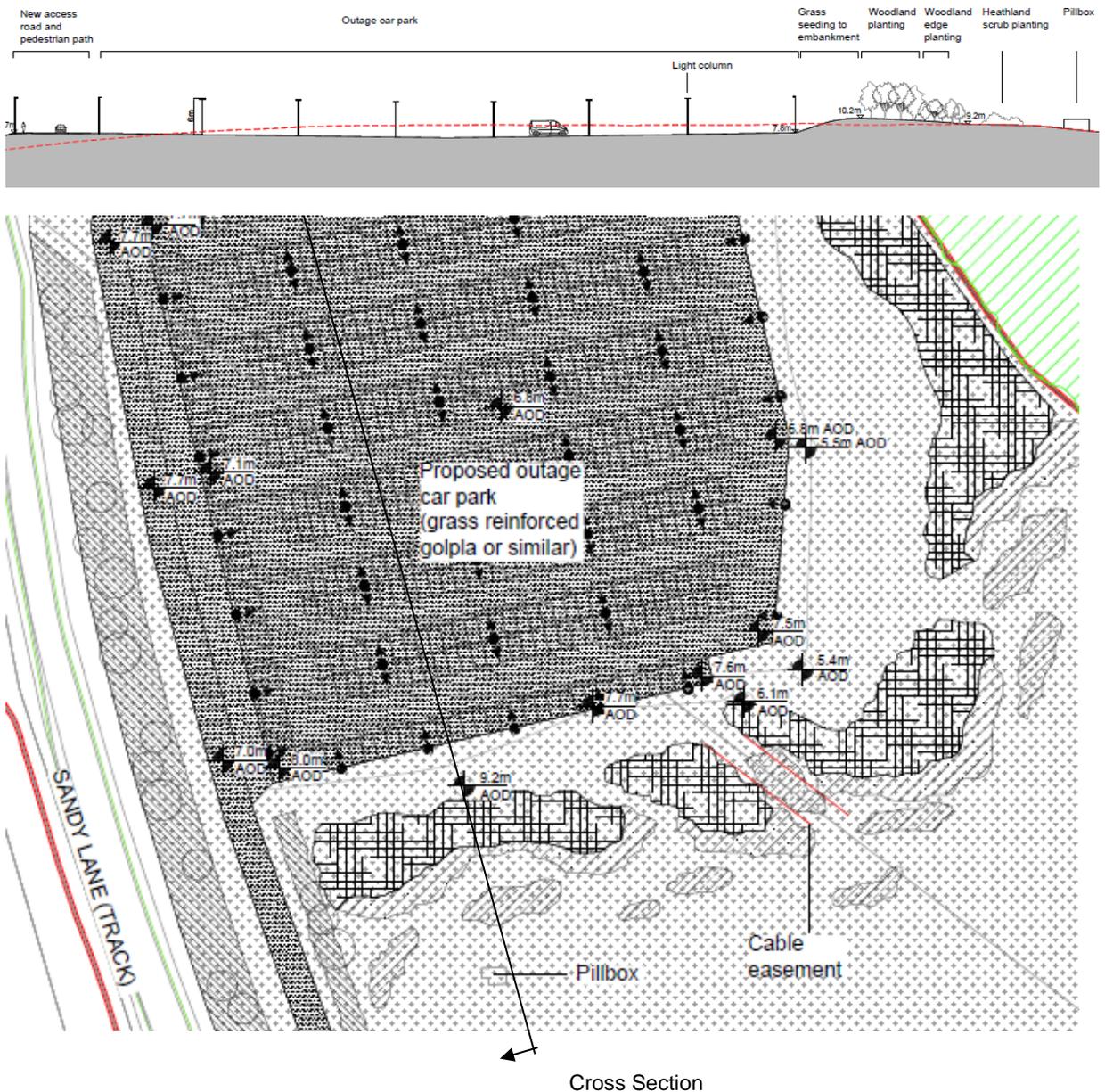


Figure 5.13: Pillbox Field Landscaping Proposal

c) Sandy Lane / Sizewell Gap Junction Design Considerations and Alternative Options

5.4.11 The design of the modified road junction and access into Pillbox Field has taken into account relevant highways standards and is shown in **Figure 5.14**. The design proposes to retain the road junction's current unlit status. In addition, no lighting is proposed for the vehicle access track from the junction to the Outage Car Park itself.

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5.4.12 The existing bridleyway is designed to be separate from the road users up to where vehicles will cross into Pillbox Field itself. When the Outage Car Park is operational, around the times of shift change, it is proposed that a traffic marshal will be in place at this entrance point to monitor vehicles going into the field, and to marshal the crossing for the bridleyway users.

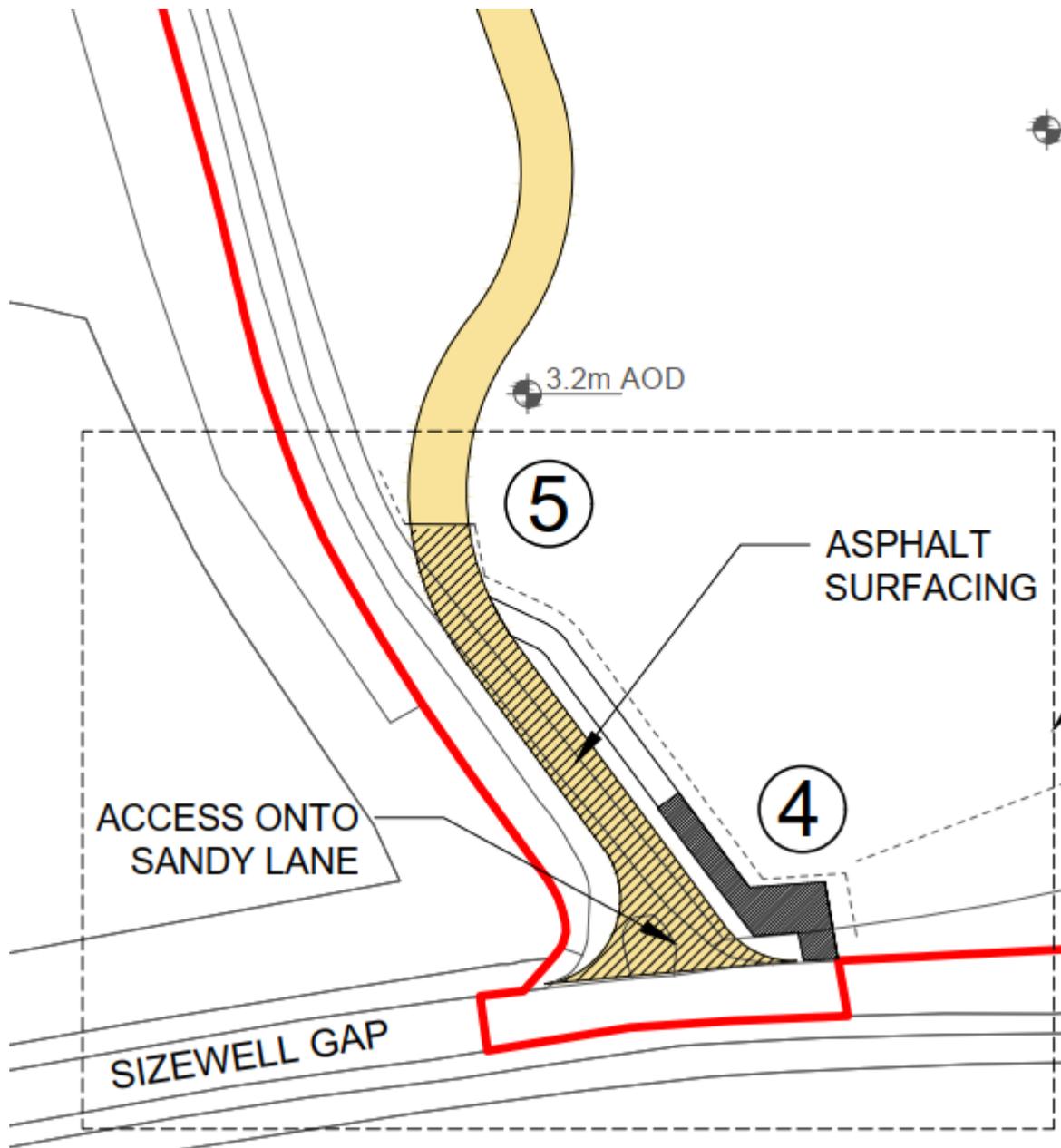


Figure 5.14: Sizewell Gap / Sandy Lane Road Junction and Route of Outage Car Park Access Track

d) Footpath between Outage Car Park and Coronation Wood Development - Design Considerations and Alternative Options

5.4.13 The footpath is proposed to be lit to ensure pedestrians have a safe and secure access route to and from the Outage Car Park during the hours of darkness. The 1m lighting

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bollard solution for the path has been proposed as it satisfies the minimum pedestrian lighting levels whilst minimising the lighting impact to the adjacent SSSI. As noted in **Section 5.2**, luminaires will generally be asymmetric, and the bollards proposed here are no exception. **Figure 5.15** provides a representation of how the bollards will look in the context of a rural setting, as well as highlighting the effectiveness of asymmetric luminaires (particularly important for the SSSI context).

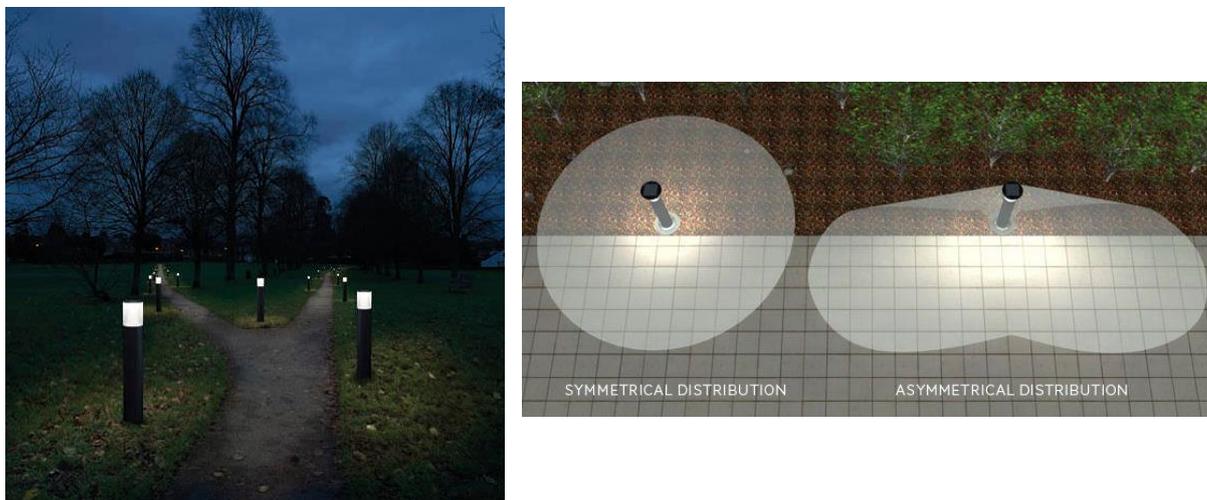


Figure 5.15: CGI Representation of Bollards Used on a Rural Pathway Setting

- 5.4.14 **Figure 5.16** provides an indication of how close the SSSI boundary is to the pathway. In the isoline plot, the bollards have not been modelled as asymmetric (this function is not available), and therefore the indication of light intrusion beyond the SSSI boundary is not representative of the expected design outcome with asymmetric luminaires, which intrude less on areas outside the pathway itself.

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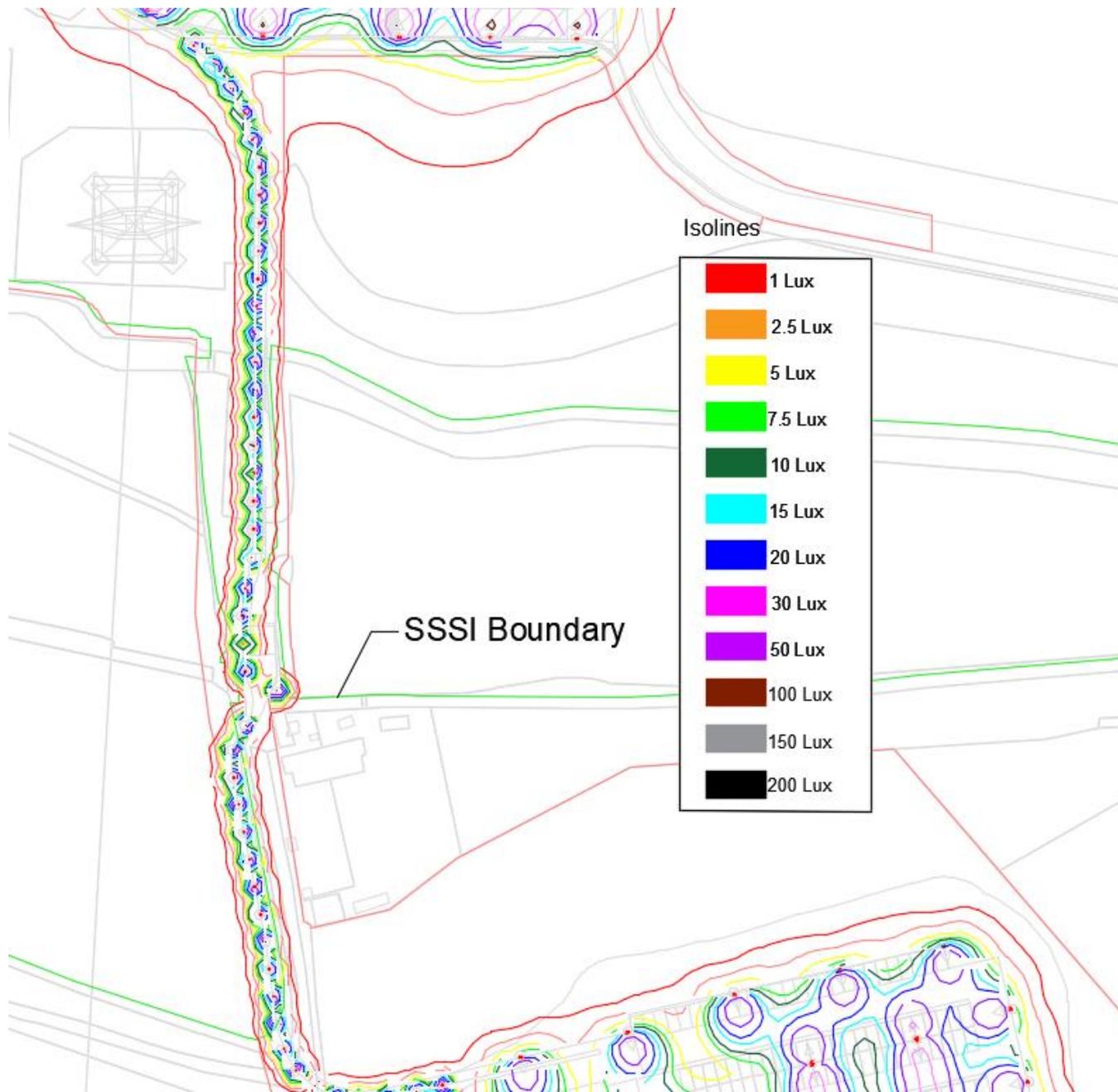


Figure 5.16: Extract of Isoline Plot for Access Pathway

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5.4.15 Alternative lighting options considered for the Outage Car Park are listed in **Table 5.9**.

Table 5.9: Alternative Access Footpath Lighting Options Considered

Alternative	Considerations	Examples
No Lighting	Ruled out on the grounds of pedestrian safety.	N/A
Low Level Permanent Lighting Columns	Considered to introduce a greater visual impact on the surrounding area and SSSI than the bollard solution, therefore ruled out.	

a) Footbridges - Design Considerations and Alternative Options

5.4.16 The footpath is proposed to be lit to ensure pedestrians have a safe and secure access route. The key design consideration that has resulted in the proposed solution of ground-mounted luminaires is the proximity of the watercourse. Animals using watercourses may be particularly sensitive to light pollution, and so the proposed solution ensures this is absolutely minimised.

5.4.17 **Figure 5.17** and **Figure 5.18** provide visualisations on how this lighting option will look.

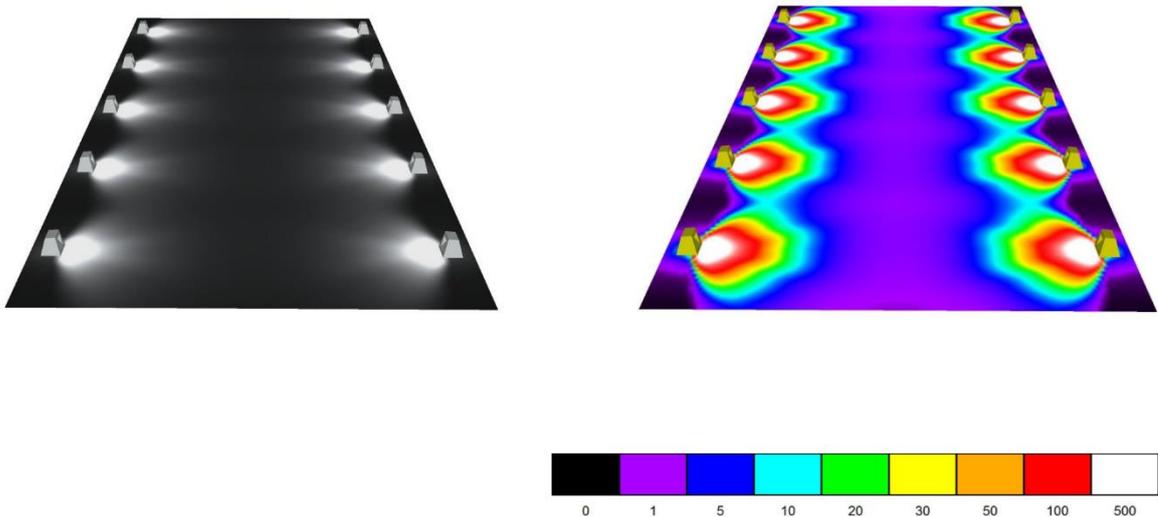


Figure 5.17: LHS - Lighting Effect; RHS - Pseudo colour image showing illuminance

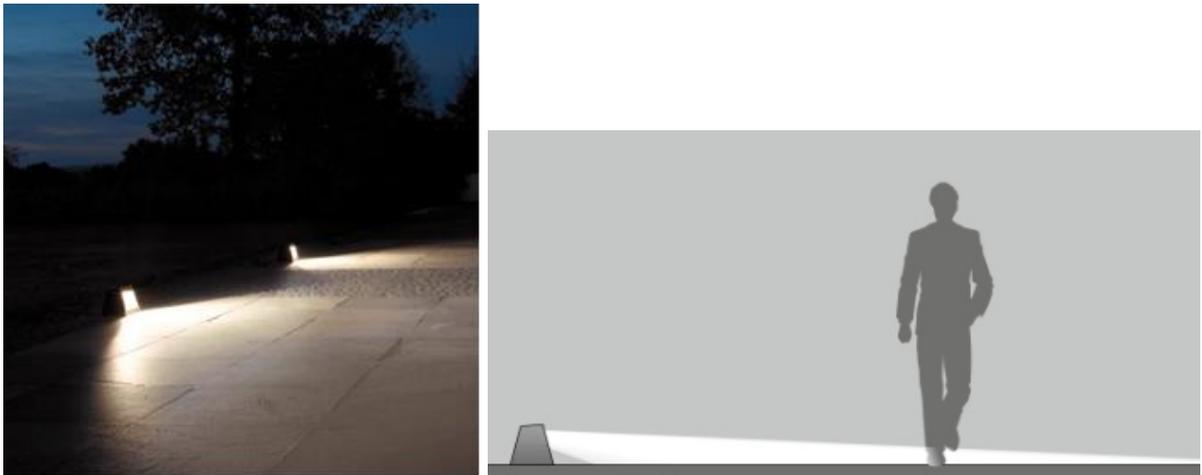


Figure 5.18: LHS - Image of specified bridge light RHS – Indication of ground-mounted illuminance in section

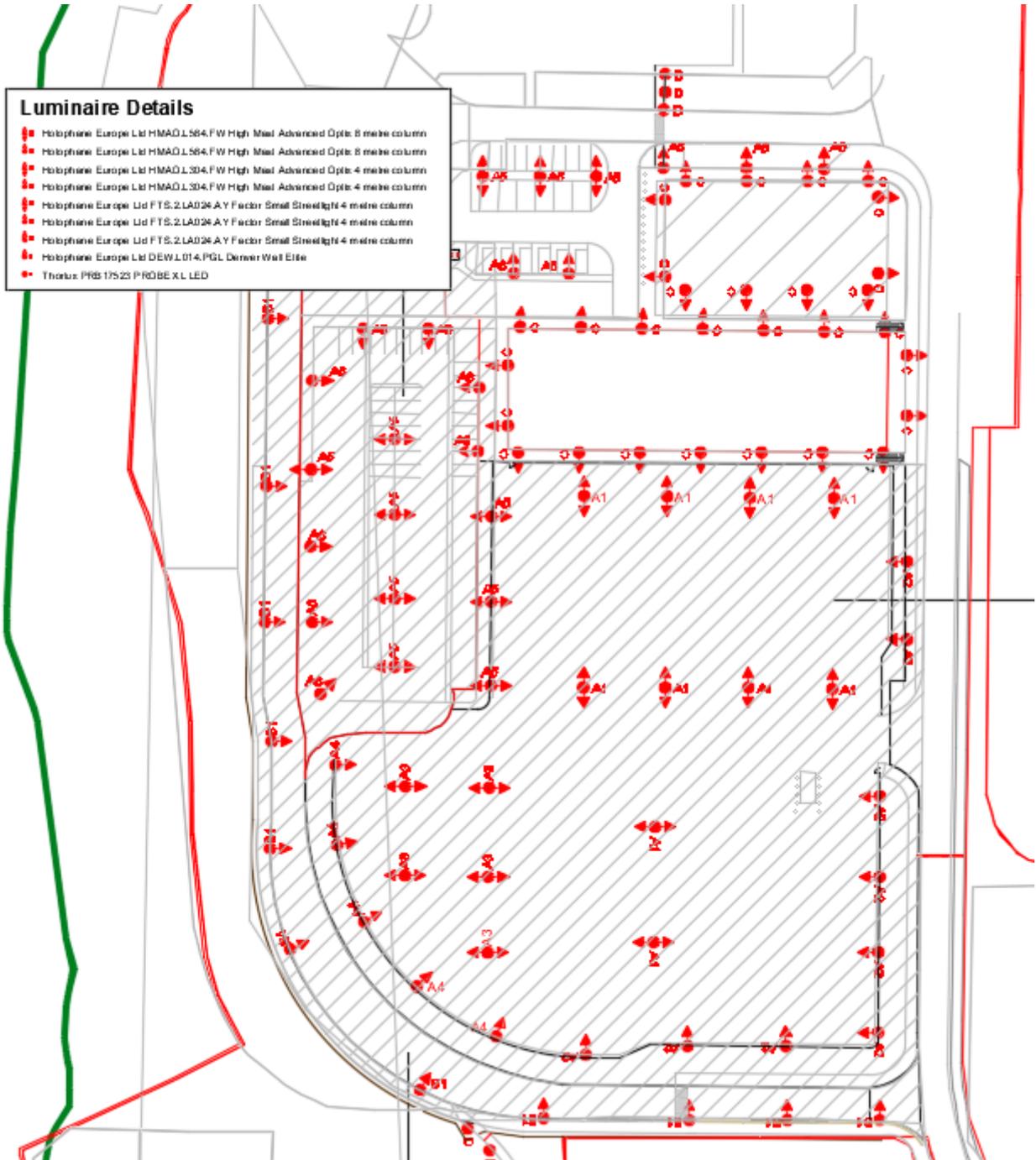
5.5 Outline Development Zone and Outage Store

- 5.5.1 For the facilities proposed within the Sizewell B Power Station site perimeter, external and internal facility lighting will adhere to the applicable design drivers and principles noted in **Section 4**. The lighting design will, however, recognise the industrial nature of the immediate surroundings meaning fewer design sensitivities than compared to the off-site development areas of Coronation Wood and Pillbox Field.
- 5.5.2 Additional external lighting for these facilities will not be significant due to the existing external lighting levels within the Sizewell B Power Station Security Perimeter. Any external lighting designed will be in keeping with the on-site setting.
- 5.5.3 Internal lighting will be provided to the requisite levels to undertake planned tasks within the facilities. A number of the facilities are industrial in nature and will have low levels of glazing.

REFERENCES

- Ref. 1 Overarching National Policy Statement for Energy (EN-1) (2011) Department of Energy and Climate Change
- Ref. 2 The National Planning Policy Framework (2019) Department for Communities and Local Government
- Ref. 3 Suffolk Coastal District Local Plan - Core Strategy and Development Management Policies – Development Plan Document: Development Management Policy DM26 – Lighting
- Ref. 4 Suffolk Coastal Local Plan Final Draft Plan: Policy SCLP10.3: Environmental Quality
- Ref. 5 Suffolk Coast and Heaths AONB Management Plan 2013 – 2018 (2013); Suffolk Coast and Heaths AONB Partnership
- Ref. 6 Suffolk Coast & Heaths AONB Position Statement (April 2016) Obtrusive lighting in the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (2016); Suffolk Coast and Heaths AONB Partnership

APPENDIX 1A CORONATION WOOD LIGHTING PLAN



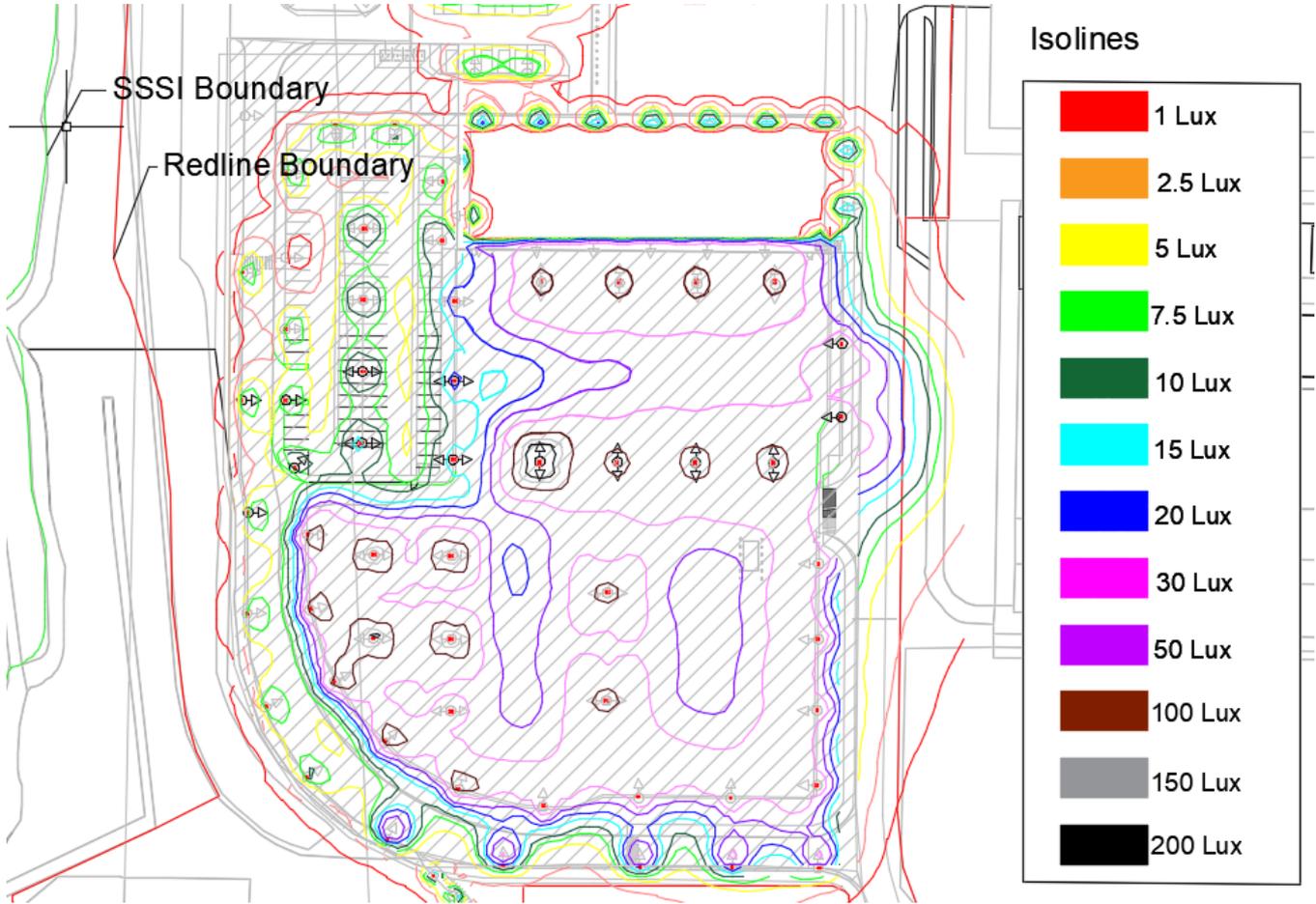
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Calculation Results for Laydown Area at 100 lux (100% output); Western Access Road at 10 lux; Car Parks and Pedestrian Footpaths at 20 lux



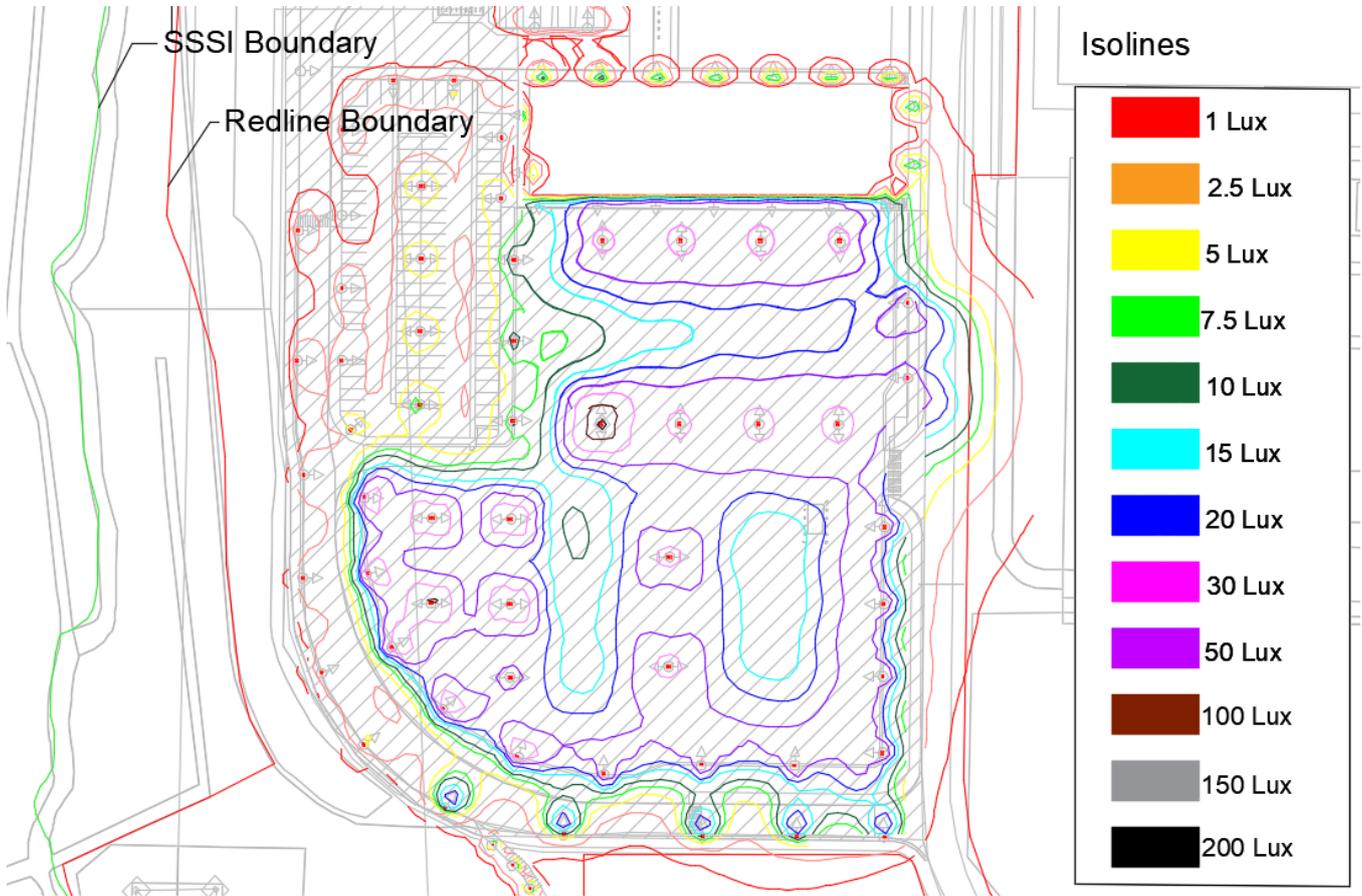
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Calculation Results for Laydown Area at 50 lux (50% output); Western Access Road at 10 lux; Car Parks and Pedestrian Footpaths at 20 lux

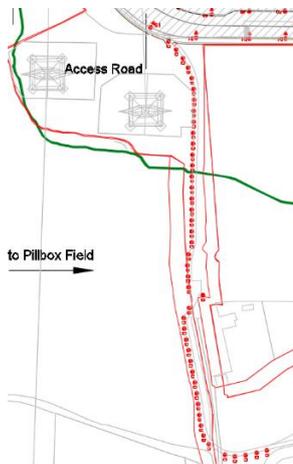
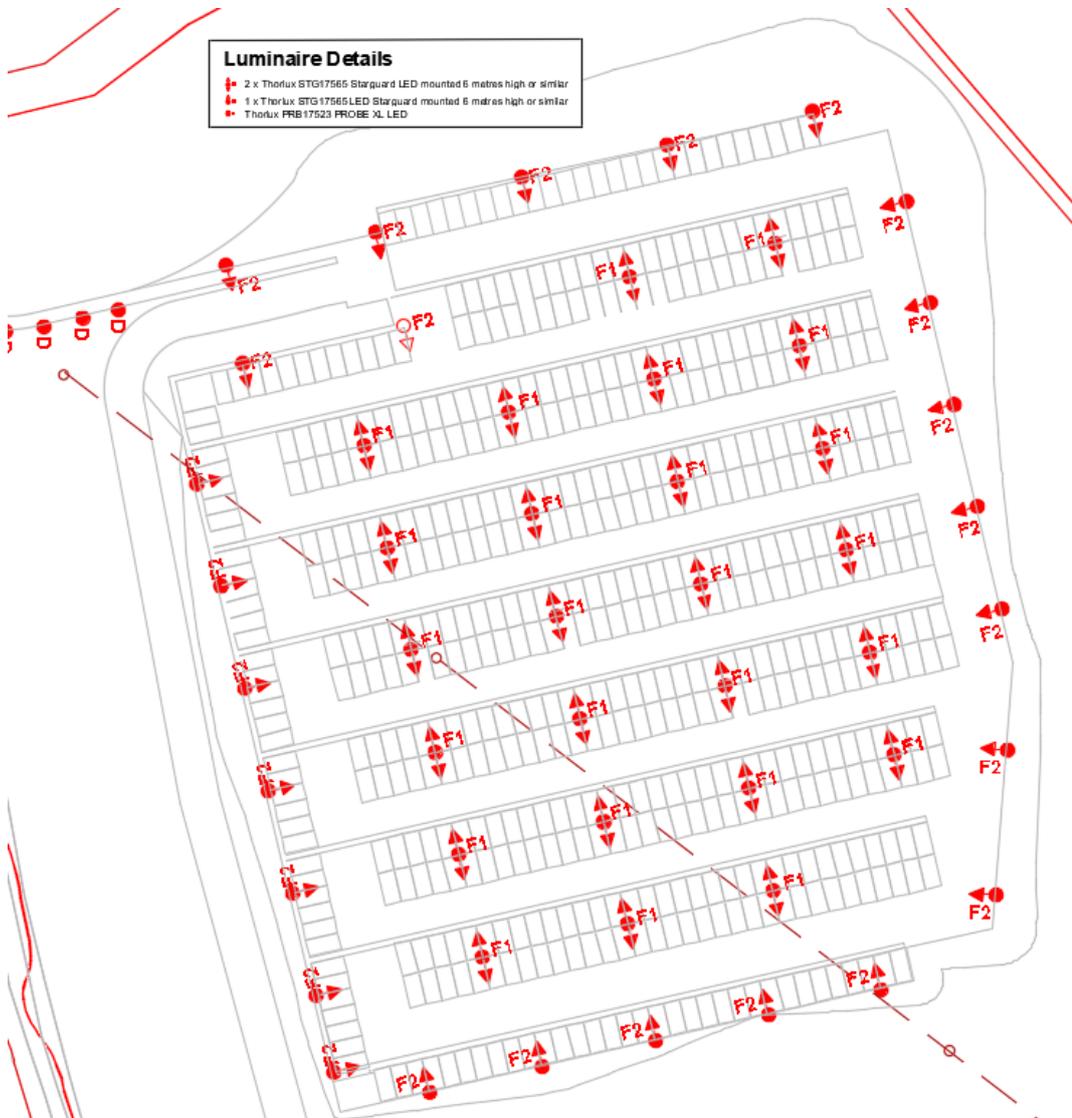


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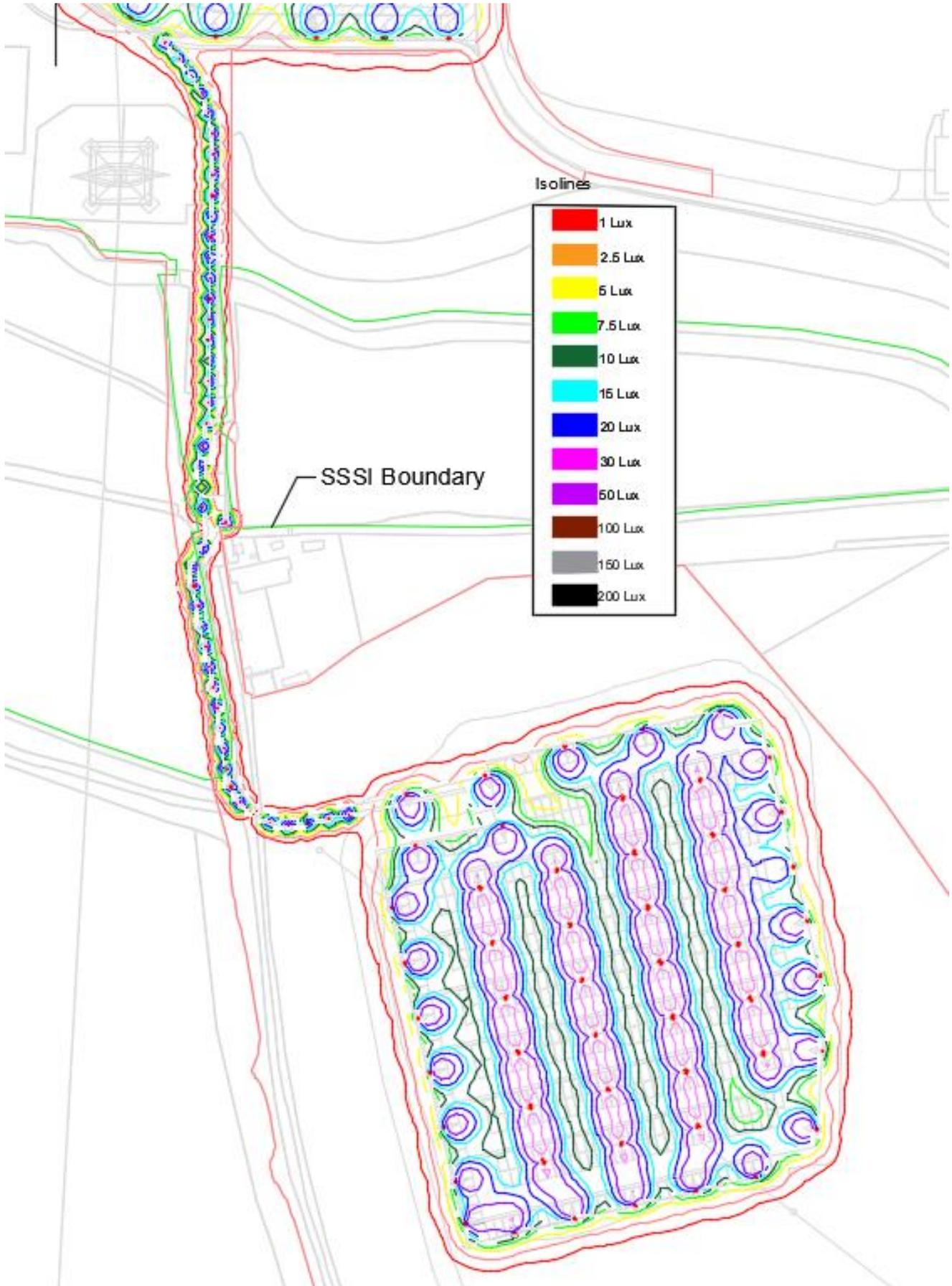
Calculation Results for Laydown Area at 20 lux (20% output); Western Access Road at 10 lux; Car Parks and Pedestrian Footpaths at 20 lux



APPENDIX 1B PILLBOX FIELD LIGHTING PLAN



Calculation Results for Pillbox Field Lighting Scheme at 100% Output



APPENDIX 1C LIGHTING SPECIFICATIONS

Table 0.1: Applicable Design Standards

Publisher	Standard reference	Document title	Legislative / Guidance
Health and Safety Executive	-	Health and Safety at Work etc. Act 1974 (including all amendments in force up to the time of issue of this report)	Legislative
Her Majesty's Government (HMG)	-	Clean Neighbourhoods and Environment Act 2005	Legislative
British Standards Institute	BS 12464-2:2007	Light and lighting — Lighting of work places Part 2: Outdoor work places	Guidance
British Standards Institute	BS EN 5489-1:2012	Code of Practice for the design of road lighting Part 1: Lighting of roads and public amenity areas	Guidance
Society of Light and Lighting	LG6	Lighting for the Outdoor Environment	Guidance
Institute of Lighting Professionals	GN01:2011	Reduction of Obtrusive Light	Guidance

Table 0.2: Lighting Performance Specification

Area	Maintenance Value, \bar{E}_m (Lux)	Minimum Uniformity Ratio, U_o	Minimum Colour Rendering Index, R_a
Uncovered parking areas	20	0,2	70
Laydown areas	100*	0.25	70
Walkways exclusively for pedestrians	20	0,2	70
Regular vehicle traffic (max. 40 km/h)	7.5	0,40	70

Table 0.3: LED Criteria

Description	Criteria
Light Source	LED
Energy efficiency	100 luminaire lumens/Circuit Watt
MacAdams factor	SDCM: 5
Colour rendering	Ra>70

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Description	Criteria
Colour temperature	3000 - 4000K
Control Gear	High Frequency
Design Life	L70/B50 @ 50,000 @ 25°C

Table 0.4: Luminaire Criteria

Description	Criteria
IP rating	65
IK rating	10
Design Life	20 years
Direct flux cut-off	0° (no light above horizontal)
Max aiming tilt	10°
Column finish	Galvanised

Table 0.5: Maintenance Activities

Description	Maintenance Frequency
Luminaire Cleaning	5 years (if not exposed to rain)
Bulk lamp and gear replacement	10 years (50,000 hrs of use)*
Bulk luminaire replacement	20 years*
Bulk column replacement	20 - 30 years (dependant on environment)

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APPENDIX 1D LUMINNAIRE DATASHEETS

NOT PROTECTIVELY MARKED

PROBE & PROBE-XL



IP66 BOLLARD LUMINAIRES

IP66 IK10 CE LED

SPECIFICATION

- Surface or root mounted accessories
- Integral control gear
- Fused mains terminal block
- Fitted with 4000K or 5700K LEDs

PROBE

- Low glare, round top bollard, aluminium construction finished black
- Clear polycarbonate cover

PROBE-XL

- High efficiency flat top bollard, aluminium construction finished black
- Linear prismatic polycarbonate cover

RANGE

LED	PROBE VERSION	PROBE-XL 790mm VERSION	PROBE-XL 1040mm VERSION	APPROX. kg
24W - 4000K	PRB 17521L	PRB 17522L	PRB 17523L	9.8
24W - 5700K	PRB 14443L	PRB 14530L	PRB 14442L	9.8

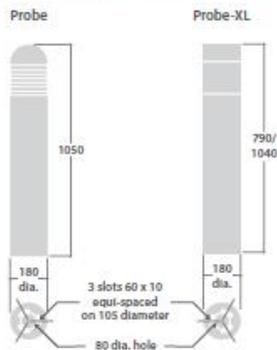
CIRCUIT TYPE - L - non-dimming (LED)

LED CHARACTERISTICS

Ra	70	°K	4000/5700	L80/B10	60K	LL/CW	Probe
P/U	P	%	>85	R/Rx	R	PF	>0.95
							Probe-XL
							10.7
							32.8

For LED characteristics explanation see www.thorlux.com/led-characteristics

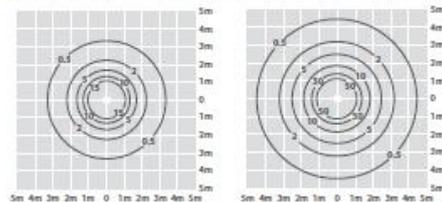
DIMENSIONS



ACCESSORIES

DESCRIPTION	CAT. No.
500mm root mounting extension	PRB 12128
Mounting adaptor for cast concrete	PRB 12129

PHOTOMETRIC GUIDE



PROBE - 24W LED
Initial lux levels at ground
Luminaire Lumen Output:
24W = 310lm

PROBE-XL - 24W LED - 1040mm VERSION
Initial lux levels at ground
Luminaire Lumen Output:
24W = 950lm

STARGUARD

ZERO UPWARD LIGHT, AREA AND ROADWAY LUMINAIRES

IP65 CE TC-T SON-T MBI-T LED

WINDAGE - 0.10m²

SPECIFICATION

- Corrosion-resistant and fire-retardant GRP moulded body - light grey finish
- Clear toughened/safety glass cover
- Aluminium heat sink ensures cool running of control gear and LEDs for optimum life in high ambient temperatures
- ZERO upward light pollution
- High elevation peak beam angle for outstanding area coverage relative to mounting height
- High beam efficiency with low glare
- Pole top or wall mounted versions (LED version features a universal mounting bracket)
- Photocell option
- Fitted with lamp
- LED versions fitted with 4000K or 5700K LEDs

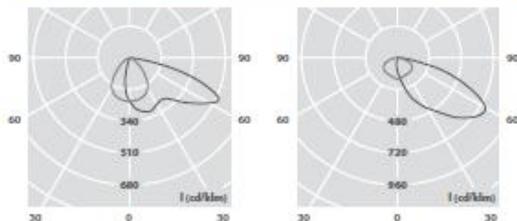


LED CHARACTERISTICS

Ra	°K	L70/B10	LL/CW 98.3
70+	4000/ 5700	100K	
P/U	%	R/Rx	PF
P	>90	R	>0.90

For LED characteristics explanation see www.thorlux.com/led-characteristics

PHOTOMETRIC GUIDE



250W SON-T / 28000lm / 8m mounting height

140W LED / 8m mounting height

Luminaire Lumen Output:
62W = 6553lm
140W = 14745lm



LED RANGE

LED	4000K VERSION	5700K VERSION	APPROX. kg
62W ■	STG 17565L	STG 16354L	11.8
140W ■	STG 17566L	STG 16355L	11.8

LAMP RANGE

LAMP	WALL MOUNTED VERSION	APPROX. kg	POLE TOP VERSION	APPROX. kg
High pressure sodium lamps				
150W SON-T	STG 10912	10.3	STG 11000	10.5
250W SON-T	STG 10913	10.8	STG 11001	11.0
Metal halide lamps - compatible with high pressure sodium control gear				
150W MBI-T ▲	STG 10909	10.3	STG 10997	10.5
250W MBI-T ▲	STG 10910	10.8	STG 10998	11.0
Compact fluorescent lamps				
42W TC-T ●	STG 13428J	7.1	STG 13426J	7.3
57W TC-T ●	STG 13429J	7.1	STG 13427J	7.3

CIRCUIT TYPE - J - non-dimming (HF fluorescent) / L - non-dimming (LED)

IMPORTANT: DO NOT USE LAMPS WITH AN INTERNAL STARTING DEVICE

NOTE: Pole top versions - Mounting pots or crossarms are required for this luminaire and must be ordered separately

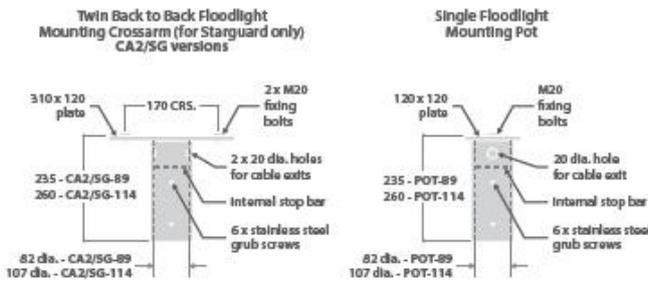
- ▲ Venture Whitelux 4000K fitted
- 4000K lamp fitted
- Universal mounting bracket suitable for wall or pole mounting

OPTIONS

DESCRIPTION	SUFFIX	EXAMPLE
Photocell	PC	STG 17565LPC



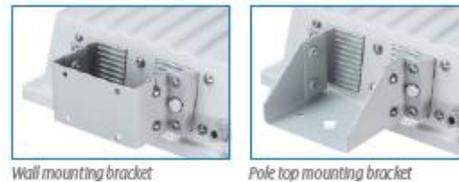
COLUMN ACCESSORIES



POT-89 or CA2/SG-89 - fits over 76 dia. shaft 4, 5 and 6m columns

POT-114 or CA2/SG-114 - fits over 101 dia. spigot insert on 8 and 10m columns

MOUNTING BRACKETS - Lamp version



Wall mounting bracket

Pole top mounting bracket

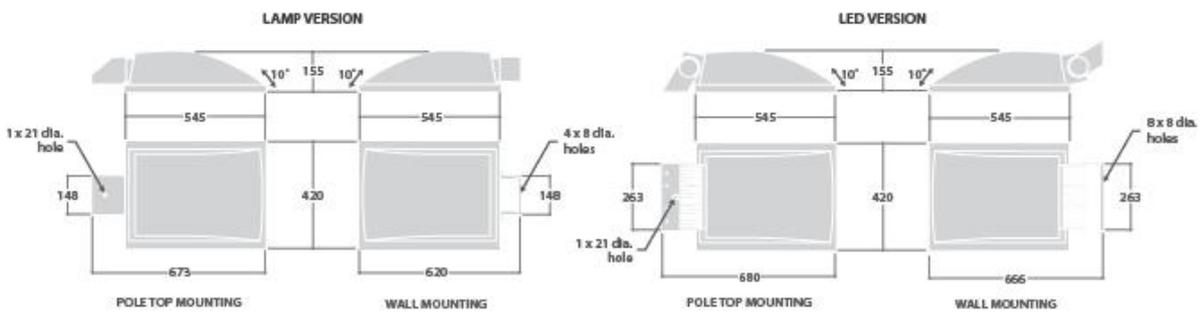
MOUNTING BRACKET - LED version



Universal mounting bracket - Wall position

Universal mounting bracket - Pole top position

DIMENSIONS





HOLOPHANE

AcuityBrands.
Expanding the boundaries of lighting™

FACTOR™
FACTOR™
SMALL

factor™ & factor™ small

NOT PROTECTIVELY MARKED



FACTOR™ and **FACTOR™ Small** from Holophane, are dedicated LED luminaires that deliver a variety of efficient lumen per watt packages with excellent optical performance. With their precision engineered optics and sleek body design - perfect for dissipating heat away from the LEDs and extending the luminaire life, **FACTOR** & **FACTOR Small** give the complete cost saving solution for street lighting environments. With a range of delivered lumen packages equivalent from 35W to 150W ceramic metal halide lamps, **FACTOR** & **FACTOR Small** deliver efficient sustainable lighting solutions that have the flexibility to meet today's and tomorrow's lighting requirements.

FACTOR & **FACTOR Small**'s design ensures cool operation that keeps it running for the long haul.

optics / light source

- > Lumen package of between 2000 - 17000 lumens
- > Two dedicated street lighting optics

applications

- > S-Class, ME-Class, Pedestrian Areas, Residential Areas and Car Parks

approvals

Complies with EN60598

CE

IP65 light engines

TA: Rated for -40°C to 40°C

For further information please visit the Holophane website www.holophane.co.uk

Typical Luminaire Performance

Configuration	Delivered Lumens	Power Consumption	Drive Current	Rated Life of LED Module (L70B50 @Tq 15°C)*
FACTOR				
FTR.LA144	14154	105W	525mA	100,000+ hrs
FTR.LA174	17056	140W	700mA	100,000+ hrs
FACTOR Small				
FTS.LA024	2359	17W	525mA	100,000+ hrs
FTS.LA034	2873	23W	700mA	100,000+ hrs
FTS.LA054	4629	35W	525mA	100,000+ hrs
FTS.LA064	5584	47W	700mA	100,000+ hrs
FTS.LA074	7077	52W	525mA	100,000+ hrs
FTS.LA084	8474	70W	700mA	100,000+ hrs
FTS.LA124	11722	100W	1050mA	100,000+ hrs

Note: Data is correct at time of print.

* For other life metric data in line with IEC PAS62722-2-1 and 62717 contact your Holophane Representative for details.



Two sizes to deliver a variety of lumen packages



Tool less trigger latch entry



10 LED Board – LA024 & LA034 versions



External fins to dissipate heat

specification

The 'finned' luminaire body, designed to dissipate heat, is manufactured from high pressure die cast aluminium that conforms to EN1706 AC-46500. A die cast aluminium door with tool less trigger latch allows access to the gear compartment concealing the IP65 control gear and connectors. The IP65 LED optical modules, with individual lenses, are mounted directly to the cast aluminium housing and wired in series. A thermal transfer interface is sandwiched between the LED module(s) and high grade aluminium housing to transfer heat away from the LEDs and dissipate through the 'finned' housing for cooling. FACTOR & FACTOR Small have been specifically designed for side entry mounting suitable for 42mm side entry. Option of 60mm version is available with code .SE60.

features and benefits

- Sleek Design with tool-less access
- > FACTOR & FACTOR Small's diecast aluminium housing acts as its primary heat sink. Its longitudinal fins employ conductive cooling techniques to dissipate heat away from the key LED components and extend luminaire life.
 - > A die-cast trigger latch allows easy tool less access into the luminaire during installation and maintenance visits.

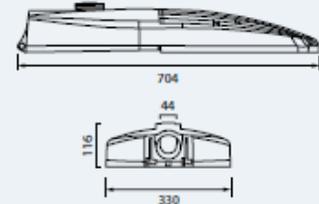
Exceptional Performance

- > Offering four lumen packages ranging from 2000lm to 17000lm with efficiencies of up to 139lpw (Lumens Per Watts).
- > Two optimised roadway distributions (asymmetric and long & narrow) delivered by quality LEDs and bespoke UV stabilised optics.
- > LED light engines with 0% ULOR ensuring night time friendly.

Fully Maintainable Performance

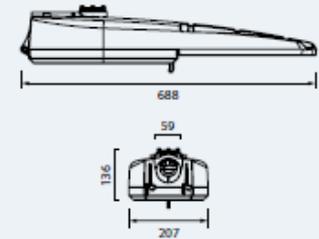
- > Single tool-less latch access to the luminaire ensures straightforward entry to the luminaire at installation and maintenance.
- > Unique IP65 rated LED light engines that are interchangeable ensuring a futureproof and maintainable LED luminaire.

Factor (FTR) dimensions in mm 



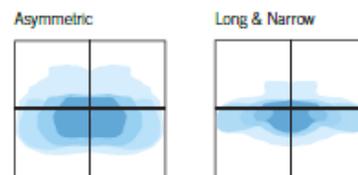
Factor is suitable for 42mm side entry as standard. The option of 60mm side entry is available with option code .SE60.

Factor Small (FTS)



Factor Small is suitable for 42mm side entry as standard. The option of 34mm or 60mm side entry is available with option codes .SE34 or .SE60.

light distribution



weight

Factor	12.0 kg
Factor Small	7.0 kg

windage (effective projected area)

Factor	0.084 m ²
Factor Small	0.071 m ²

Note: The specifications of the Holophane luminaire and columns represents typical values. All descriptions, illustrations, drawings and specifications in the Holophane catalogue and website represent only general particulars of the goods to which they apply and shall not form part of any contract. The company reserves the right to change specifications at its discretion without prior notification or public announcement.



typical spacing

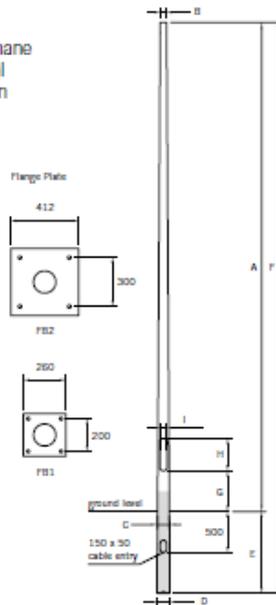
- > Designed to S4, BSEN13201 P2, 2003
- > 6m mounting height, 2 lanes, 10m road width with 2m setback.
- > Achieving 36m max spacing with 0.22 uniformity.



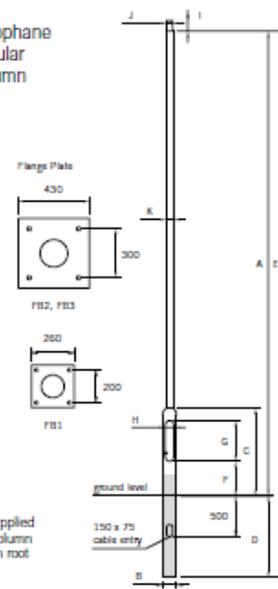
typical spacing

- > Designed to S4, BSEN13201 P2, 2003
- > 6m mounting height, 2 lanes, 10m road width with 2m setback.
- > Achieving 32m max spacing with 0.25 uniformity.

Holophane Conical Column



Holophane Tubular Column



All columns are supplied with Earthing on column doors and Bitumen root as a standard.

Holophane Conical Column

Height (m)	Nominal Height	Top Diameter	Base Diameter	Root End Diameter	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Weight kg ²	Bending Moment Nm
drawing ref	A	B	C	D	E	F	G	H	I		
3m std	3000	76	127	141	800	3800	425	400	85	33.68	5040
4m std	4000	76	118	126	800	4800	425	400	85	39.08	3890
4m hd	4000	76	133	144	800	4800	425	400	85	40.08	5640
5m std	5000	76	128	136	800	5800	425	400	85	49.45	4900
5m hd	5000	76	147	158	800	5800	425	400	85	51.65	6960
6m std	6000	76	138	148	1000	7000	425	400	85	65.84	5800
6m hd	6000	76	161	175	1000	7000	425	400	85	67.39	8070
8m std	8000	76	158	170	1200	9200	425	500	100	119	11920
8m hd	8000	76	189	206	1200	9200	425	400	85	124.45	18000

Code	Height	Flange Plate	Bolt
HELC.FS1	3-5m Poles	FB1	M18 x 400
HELC.FS2	6-8m Poles	FB2	M24 x 500

* Exclusion TSC

Holophane Tubular Column

Height (m)	Nominal Height	Base Diameter*	Base Height	Planting Depth	Overall Length	Door to Ground	Door Opening Length	Door Opening Width	Spigot Length*	Spigot Diameter*	Shaft Diameter*	Weight kg ²	Bending Moment Nm
drawing ref	A	B	C	D	E	F	G	H	I	J	K		
3m std	3000	140	1075	800	3800	425	500	100	--	--	76	28.42	TBC
4m std	4000	140	1075	800	4800	425	500	100	--	--	76	32.96	6500
4m hd	4000	168	1250	800	4800	425	500	100	130	76	89	51.6	9865
5m std	4700	140	1075	800	5500	425	500	100	--	--	76	36.13	6200
5m hd	4700	168	1075	800	5500	425	500	100	130	76	89	50.7	9865
6m std	5700	140	1075	1000	6700	425	500	100	--	--	76	42.69	6000
6m hd	5700	168	1075	1000	6700	425	500	100	130	76	89	60.07	9550
8m std	7700	168	1250	1200	8900	500	600	115	130	76	89	77.30	10100
8m hd	7700	168	1250	1200	8900	500	600	115	250	102	114	96.32	14000

Code	Height	Flange Plate	Bolt
HELB.FS1	3-5m Poles	FB1	M18 x 400
HELB.FS2	6-8m Poles	FB2	M24 x 500

* Exclusion TSC

Flange Plate and J-Bolt information will be confirmed at time of order due to the necessity in ensuring the correct plate and J-Bolts are supplied.

std = Standard hd = Heavy Duty

Column type to be confirmed at time of order as this is based on luminaire weight, windage and geographical location.

HOLOPHANE

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Expanding the boundaries of lighting™

HMAO
High Mast Advanced Optix

LUX
Awards 2015
WINNER

HMAO

LED





The High Mast Advanced Optix (HMAO) luminaire has been engineered for new and retrofit high mast applications. With the latest in high-efficiency LED technology it provides a complete lighting solution for the simplest through to the most complex area lighting applications.

The specially engineered optical modules come with a full range of distribution options to meet the highest performance standards and deliver outstanding visibility and uniformity.

For over 120 years Holophane has enjoyed an enviable reputation throughout the world for expertise, quality and innovation in lighting. From the earliest days, when the company pioneered its famous glass refractor, the Holophane name has been ever present as a leader in the field of luminaire and lighting design. HMAO is a continuation of this proud tradition.

optics / light source

- > Fully soak tested light engines ensuring LED reliability
- > 70 CRI
- > 4000°K colour temperature
- > Three lumen packages available (30,000, 44,000 & 58,000)

approvals

Complies with EN60598



Ta -20°C to 30°C

For further information please visit the Holophane website www.holophane.co.uk



Durability
Performance
Reliability

Typical Luminaire Performance

Configuration	Delivered Lumens	Power Consumption	Drive Current	Rated Life of LED Module (L70B50 @Tq 25°C)
HAL.L304	c.30,000	252W	1.05Amp	100,000
HAL.L444	c.44,000	376W	1.05Amp	100,000
HAL.L584	c.58,000	490W	1.05Amp	100,000

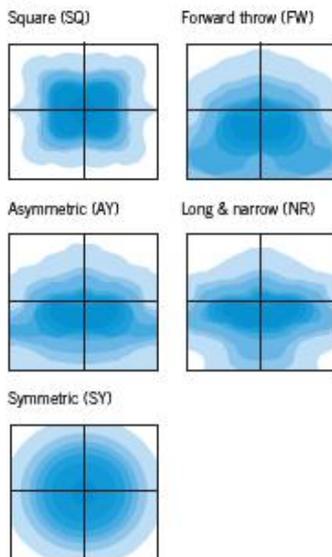
Note: Data is correct at time of print.

Holophane's optical design

In this very competitive environment, it is becoming increasingly important to reduce operating costs and improve efficiency. Holophane is your expert when it comes to delivering the most efficient lighting solutions to help you achieve that goal.

Taking advantage of the most advanced technologies available, you can achieve an energy saving of up to 66% over existing installations. Holophane's High Mast Advanced Optix (HMAO) helps you to reduce installation and long term maintenance costs.

light distribution



Glass Refractor

The major advantage of glass over aluminium or plastic is its low electrostatic charge, which makes it less attractive to dust and dirt accumulation over time. A glass refractor has a much lower light depreciation over time than either aluminium or plastic, fewer luminaires are required, significantly reducing installation, operating and maintenance costs.

Self Cleaning Effect

The glass optics & the vertical ventilation slots in the heat-sink chassis work together in creating a self-cleaning optic. The heat generated by the LEDs helps to channel cooler and denser air across the low static optical glass surface thus preventing the settling of dust particles and enhancing the lumen maintenance of the luminaire.

Advanced Optical Control

By combining the latest in LED technology with our advanced glass refractor optic we are able to break up the image of the LEDs with a PrismGlow effect. This reduces the glare normally associated with individual LEDs and eliminates hot spots on the working environment thus creating a more uniform vertical and horizontal lighting solution.



< Ventilated optical housing

specification

specification

The luminaire shall consist of six, nine or twelve prismatic glass refractors manufactured from borosilicate glass to ensure longevity and minimise dirt depreciation. Each glass lens houses a multi die LED 'chip on board' and creates individual optical pods. Each optical pod is housed in a fully ventilated and finned housing manufactured from aluminium to maximise heat transfer. The electrical housing consists of two castings containing the drivers, 10kV surge protection and electrical termination. The luminaire chassis and electrical housing utilises all three heat transfer mechanisms of conduction, convection and radiation to ensure that the multi die 'chip on board' LED's and electronic drivers are thermally managed. Mounting is via the four bolt side arm mounting with +/-5 degree tilt and suitable for 42mm and 60mm.

applications

Freight Terminals
Industrial Facilities
Car Parks/Truck Stops
Ports and docks
Airports
Motorways
Toll Plazas

weight/windage

23kg / 0.120m²

TA

-20°C to 30°C

features and benefits

Thermally Managed Solution

- > Utilises convection and conduction to thermally manage the LEDs ensuring longer life and high delivered lumen outputs to replace 400-1000 watt metal halide systems.
- > Gear housing designed to maximise heat dissipation, via conduction, from critical electronic components to ensure that they are run as cool as possible to deliver a long system life.

Exceptional Optical Performance

- > Glass refractor technology which delivers a wholly luminous effect that accurately controls the output of the LEDs, reduces glare with its 'PrismGlow' and delivers excellent uniformity.
- > Rotatable optical assembly providing on site alignment of distributions to specific lighting requirements and ensuring equal weight distribution on existing mast head frame.
- > Five dedicated distributions designed for all types of retrofit or new installations where high mounting is required.

Enhanced Lumen Maintenance

- > Glass optics ensure a low electrostatic charge which make it less attractive to dust and dirt accumulation over time so improving dirt depreciation over time.
- > Ventilated luminaire chassis works together with the glass optics to create self-cleaning system which enhances the lumen maintenance of the luminaire over time.

Installation Flexibility

- > Suitable for side entry mounting via the integrated four bolt mounting system which also offers 0 or 5 degree tilt.



Customer benefit expressed in numbers on a new build and retrofit installation

retrofit



Design Parameters

- > Designed to EN 12464-2:2014
- > Target of 30 lux
- > 30m mounting height in a 1000m grid
- > Designed to 8000 hours

Product Used

- 32 High Mast Advanced Optix
- > Luminous flux: c44,000
- > Luminous efficiency: 118 lpw
- 32 1000MH Luminaire
- > Luminous flux: c67,000
- > Luminous efficiency: 62 lp/W

Benefits

- > 66% year 1 energy savings
- > Improved light control
- > Horizontal/vertical uniformity improved

Year 1 energy consumption



HMAO		1000W MH
32	No of Luminaires	32
32	Eav (lux)	31
0.597	Uniformity	0.552
12.03	Total Power Load kW	34.72
£4,831	Year 1 Energy	£13,940

new build



Design Parameters

- > Designed to EN 12464-2:2014
- > Target of 30 lux
- > 30m mounting height in a 1000m grid
- > Designed to 8000 hours

Product Used

- 26 High Mast Advanced Optix (HMAO)
- > Luminous flux: c58,000
- > Luminous efficiency: 118 lpw
- 26 Equivalent LED High Mast Luminaire
- > Luminous flux: c56,000
- > Luminous efficiency: 93 lp/W

Benefits

- > 19% year 1 energy savings
- > 20% Improvement in uniformity
- > Improved vertical illumination
- > Low glare

Year 1 energy consumption



HMAO		Equivalent LED high mast luminaire
26	No of Luminaires	26
30	Eav (lux)	30
0.779	Uniformity	0.651
13.00	Total Power Load kW	15.86
£5,220	Year 1 Energy	£6,368

* Designed to EN12464-2:2014 ref 5.4



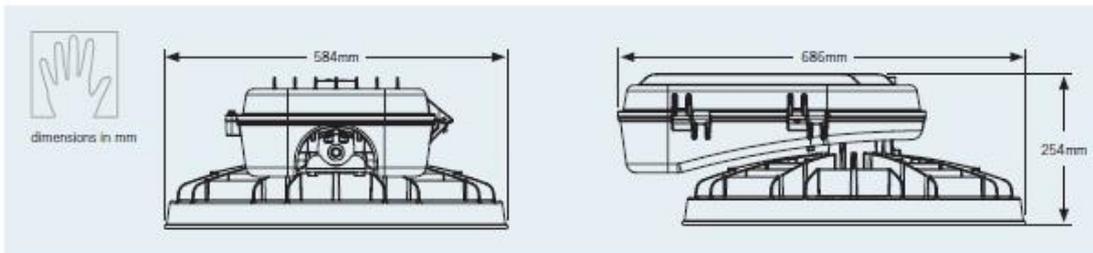
Rotatable optical assembly



Four bolt mounting suitable for 42mm and 60mm side entry



Hinged upper casting



Application

LED luminaire for glare-free illumination of floor surfaces from an extremely low mounting height.

For the illumination of forecourts, gateways and ways in private and public facilities.

Product description

Luminaire made of aluminium alloy, aluminium and stainless steel
Clear safety glass
Silicone gasket
Luminaire with mounting plate for bolting onto a foundation or an anchorage unit
2 inner screw cable glands complete with cone-thrust collar, gaskets and dummy plugs, suitable for through-wiring of mains supply cable of ø 15 mm max. 5 × 2.5²
Connecting terminal and earth conductor terminal 2.5²
LED power supply unit
220-240 V ~ 0/50-60 Hz
DALI controllable
A basic isolation exists between power cable and control line
Safety class I
Protection class IP 67
Dust-tight and protection against temporary immersion
Impact strength IK09
Protection against mechanical impacts < 10 joule
 – Safety mark
CE – Conformity mark
Weight: 2.6 kg



www.bega.com

Lamp

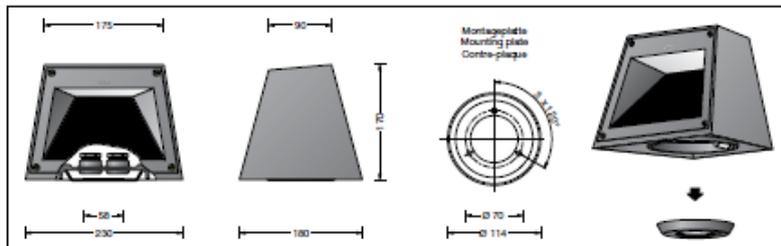
Module connected wattage 8.2 W
Luminaire connected wattage 11.2 W
Rated temperature $t_a = 25\text{ °C}$
Ambient temperature $t_{a\text{max}} = 50\text{ °C}$

77 791

Module designation 2 x LED-0233/840
Colour temperature 4000 K
Colour rendering index $R_a > 80$
Module luminous flux 1130 lm
Luminaire luminous flux 340 lm
Luminaire luminous efficiency 30,4 lm/W

77 791 K3

Module designation 2x LED-0233/830
Colour temperature 3000 K
Colour rendering index $R_a > 80$
Module luminous flux 1130 lm
Luminaire luminous flux 340 lm
Luminaire luminous efficiency 30,4 lm/W



Lifetime of the LED

Ambient temperature $t_a = 15\text{ °C}$
– at 50,000h: L 90 B 10
– at > 500,000h: L 70 B 50

Ambient temperature $t_a = 25\text{ °C}$
– at 50,000h: L 80 B 10
– at 277,000h: L 70 B 50

max. ambient temperature $t_a = 50\text{ °C}$
– at 50,000h: L 70 B 50
– at 66,000h: L 70 B 50

Article No. 77 791

Colour temperature 4000 K.
Also available with 3000 K on request.
4000 K – article number
3000 K – article number + K3

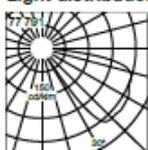
Colour graphite or silver
graphite – article number
silver – article number + A

Accessory

70 894 Anchorage unit
Anchorage unit with mounting flange made of galvanised steel.
Total length 400 mm.
3 stainless steel mounting screws M 6.
Pitch circle ø 70 mm.

For the accessories a separate instructions for use can be provided upon request.

Light distribution



LIST OF ABBREVIATIONS

Abbreviation	Term
AONB	Area of Outstanding Natural Beauty
GN	Guidance Note
LED	Light Emitting Diode
LVIA	Landscape and Visual Impact Assessment
SSSI	Site of Special Scientific Interest
ULR	Upward Light Ration of the Installation

GLOSSARY

Abbreviation	Term
Curfew	time during which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by a government controlling authority, usually the local government
Diversity	ratio of minimum illuminance (luminance) to maximum illuminance (luminance) on (of) a surface
Glare Rating Limit	upper limit of glare by the CIE Glare Rating system
Maintained Illuminance	value below which the average illuminance on the specified surface is not allowed to fall
Obtrusive Light	which because of quantitative, directional or spectral attributes in a given context, gives rise to annoyance, discomfort, distraction or a reduction in the ability to see essential information
Spill Light	light emitted by a lighting installation which falls outside the boundaries of the property for which the lighting installation is designed
Task Area	partial area in the work place in which the visual task is carried out. For places where the size and/or location of the task area are unknown, the area where the task may occur is the task area
Upward Light Ratio	proportion of the flux of the luminaire(s) that is emitted above the horizontal, when the luminaire(s) is (are) mounted in its (their) installed position and attitude

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[edfenergy.com](https://www.edfenergy.com)

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VOLUME II:
TECHNICAL APPENDICES

3.2 Drainage Strategy

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CONTENTS

1.	INTRODUCTION	1
2.	OVERARCHING SURFACE WATER DRAINAGE STRATEGY	3
2.2	Summary of Strategy and Approach.....	3
2.3	Aims of Drainage Strategy.....	4
2.4	Strategic Design Criteria.....	5
3.	EXISTING SURFACE WATER DRAINAGE	7
3.1	Southern (Gravity) Branch.....	7
3.2	Northern (Pumped) Branch and Existing Pumping Station.....	11
4.	DESIGN PARAMETERS	12
4.2	Overarching Assumptions	16
5.	CONSIDERATION OF SIZEWELL B RELOCATED FACILITIES END STATES	18
6.	FACILITIES WITHIN THE SIZEWELL B STATION PERIMETER	19
6.1	Proposed Outage Store (SOS).....	19
6.2	Outline Development Zone.....	21
7.	FACILITIES OUTSIDE THE SIZEWELL B STATION SECURITY PERIMETER.....	23
7.1	Area Immediately West of Sizewell B Power Station.....	23
7.2	Temporary Visitor Centre	32
7.3	Pillbox Field	32
8.	DECOMMISSIONING OF PUMPING STATION.....	36

TABLES

Table 4-1: Surface Water Design Parameters.....	14
Table 4-2: Factor of Safety for Infiltration Systems	16
Table 6-1: Proposed Outage Store Surface Water Drainage Hierarchy	20
Table 7-1: Proposed Car Park and Laydown Surface Water Drainage Hierarchy.....	25
Table 7-2: Western Access Road Surface Water Drainage Hierarchy	28
Table 7-3: New Training Centre Surface Water Drainage Hierarchy.....	30
Table 7-4: Pillbox Field Car Park Surface Water Drainage Hierarchy	34
Table 8-1: Proposed Pavement Construction for Areas 1, 2, 3	40

FIGURES

Figure 3-1: Existing Surface Water Drainage Network.....	8
Figure 3-2: Proposed Facilities (excl. Pillbox Field Outage Car Park).....	9
Figure 3-3: Proposed Location of the Pillbox Field Outage Car Park Facility	10
Figure 4-1: Flood Map (Rivers and Sea) [Environment Agency]	13
Figure 4-2: Peak Rainfall Intensity Allowance in small and urban catchments (use 1961 to 1990 baseline) [Environment Agency].....	14

NOT PROTECTIVELY MARKED

Figure 6-1: Proposed Outage Store Drainage Schematic 19

Figure 6-2: Development Areas within the Sizewell B Power Station Security Perimeter 22

Figure 7-1: Car Park and Laydown Area Proposed Drainage Strategy Schematic 24

Figure 7-2: Discharge into Permeable Paving Sub Base 27

Figure 7-3: Infiltration Systems 5m Exclusion Zone 27

Figure 7-4: Pillbox Field Existing Drainage Plan 33

Figure 7-5: Pillbox Field Outage Car Park Surface Water Drainage Strategy Schematic 33

Figure 8-1: Existing Pumping Station (Affected Areas) 37

Figure 8-2: Infiltration Options for Areas 1, 2, 3..... 39

Figure 8-3: Permeable Paving Concrete Baffles [Marshalls- Permeable Paving Design Guide] 40

Figure 8-4: Impermeable and Permeable Paving 41

Figure 8-5: Permeable Sub-base Replacement System located beneath permeable paving structure [Interpave – Permeable Pavements] 41

1. INTRODUCTION

- 1.1.1 A number of existing Sizewell B Power Station facilities need to be relocated from the area of land that is nominated as a potentially suitable site for the development of the Sizewell C new nuclear power station – the Sizewell B Relocated Facilities (referred to as the ‘Proposed Development’). The facilities have a broad range of functions including industrial, workplace, education, cultural and infrastructure; some of which need upgrading to comply with current standards and requirements.
- 1.1.2 The Planning Application consists of outline and full elements:
- In outline, comprising a Visitor Centre (maximum 2,000sq.m GEA) and a maximum of 9,500sq.m (GEA) of floorspace to provide administration, storage, welfare and canteen facilities with all matters reserved apart from access.
 - In full, for the demolition of the existing Outage Store, Laydown Area, Operations Training Centre, Technical Training Facility, Visitor Centre, and Rosery Cottage garage; removal of technical training and pool car park (63 spaces), Coronation Wood car park (21 spaces), Visitor Centre car park (16 spaces) and northern outage car park (576 spaces); meantime use of the Technical Training Centre as an interim Visitor Centre followed by its demolition; and erection of new (all floorspace in GEA) Outage Store (2,778sq.m), Laydown Area (11,990sq.m) including New Western Access Road, Yardman’s Office (23sq.m), Training Centre (4,032sq.m), Rosery Cottage garage (30sq.m), Replacement Car Park (2,363sq.m) providing 112 spaces, and Outage Car Park (15,525sq.m) providing (576 spaces) including new access road (and alternative access to bridleway), footpath and amended junction at Sizewell Gap; and associated landscaping earthworks/recontouring, tree felling and boundary treatment.
- 1.1.3 As noted above, the Proposed Development includes the relocation of the Outage Store, which is associated with the shutdown period when the Sizewell B Power Station is refuelled. A planned outage occurs approximately every 18 months where the reactor components are taken apart and the fuel is replaced. During this period the station components that cannot be accessed during normal operating conditions are inspected or replaced and tested. The plant is then reassembled and tested to ensure it meets the relevant safety and functional requirements.
- 1.1.4 The following sections outline the Surface Water (SW) Drainage Strategy, as part of the Sizewell B Relocated Facilities Project.
- 1.1.5 Note: all reference to drainage in this document relates to surface or storm water drainage. Foul Water drainage has been addressed separately to this report.
- 1.1.6 The drainage strategy contained herein applies to the following facilities:
- Proposed Car Park
 - Pillbox Field Outage Car Park (including pedestrian access)
 - Laydown
 - Western Access Road

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- Proposed Outage Store
- Proposed Training Centre
- Outline Development Zone facilities
- Pumping Station Removal
- Proposed Visitor Centre

1.1.7 Where stated within this document, reference to 'Station' refers to the main Sizewell B Power Station site and includes the main area within the Sizewell B perimeter, i.e. excludes areas outside of the perimeter, such as the car parks, external site access roads, training centre, visitor centre and Coronation Wood etc.

2. OVERARCHING SURFACE WATER DRAINAGE STRATEGY

2.1.1 This section outlines the site wide drainage strategy, applicable to all Relocated Facilities inside and outside of the Sizewell B Power Station. Details regarding facility specific drainage strategies can be found in Sections 6 and 7. Details of the concept designs arising from the application of this strategy have been presented separate to this document.

2.2 Summary of Strategy and Approach

2.2.1 The surface water drainage strategy has been developed in such a way that it will not adversely affect the hydraulic performance of the existing site surface water drainage networks, nor will it materially affect overland flow paths within the Sizewell B Station Perimeter. The drainage aspects of the Sizewell B Power Station Nuclear Safety Case (the justification to the regulator that the site can be designed, constructed and operated safely) do not place claims on the piped networks, but instead rely on overland flow to deal with exceptional events. The adoption of this strategy will not adversely affect the station's Nuclear Safety Case, and the strategy therefore does not specifically make further reference to specific 'nuclear' requirements.

2.2.2 Due to the location of the relocated facilities, as illustrated in **Figure 3-2** and **Figure 3-3**, and where deemed necessary, surface water drainage associated with the proposed facilities will connect to the southern branch of the surface water drainage network (shown in blue in **Figure 3-1**), and therefore will not adversely alter or increase surface water run-off draining into the northern branch of the surface water drainage network (Red in **Figure 3-1**).

2.2.3 The drainage strategy for the Relocated Facilities is summarised as:

- Assets outside the Station – drainage by infiltration, independent of existing site (i.e. inside the Station) piped networks.
- Assets inside the Station – drainage direct to existing site piped networks, with exceedance flows addressed through overland flow.

2.2.4 The drainage strategy has been developed following conventional industry standards, guidance and best practice regarding the safe and sustainable management of surface water run-off. The strategy has also been developed with specific consideration of site issues which would affect the feasibility of specific solutions, such as the congestion of the below ground space on site within the station, availability of existing drainage features, and the nature of the subsoil.

2.2.5 The overarching surface water drainage philosophy for the site wide facilities follows the conventional Sustainable Drainage (SuDS) steps / hierarchy presented below, moving from each stage to the next only when the current stage is deemed not practicable within the project:

- 1: Store rainwater for later use (e.g. rainwater harvesting);
- 2: Use infiltration techniques (e.g. porous surfaces);

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- 3: Attenuate rainwater in ponds or open water features for gradual release;
- 4: Attenuate rainwater by storing in tanks for gradual release through an outlet;
- 5: Discharge rainwater direct into watercourse;
- 6: Discharge rainwater to a surface water sewer / drain;
- 7: Discharge rainwater to a combined sewer.

2.2.6 Rainwater harvesting is considered not to form a part of the drainage strategy, as these features do not provide any attenuation storage. For design purposes they are considered as being full from a previous rainfall event when the next occurs. The possible implementation of rainwater harvesting for each proposed facility will be addressed in the subsequent design stages.

2.2.7 Green roofs have not been considered as forming part of the drainage strategy for the site due to the limited benefits that they offer when assessing attenuation and controlling run-off rates for storms greater than the 1 in 1 year rainfall event. Their possible implementation and use for the proposed facilities will be addressed in the subsequent design stages.

2.2.8 The drainage design will be coordinated accounting for site constraints, including the location of the existing and proposed underground utilities, alongside accommodating constructability and maintainability limitations.

2.3 Aims of Drainage Strategy

2.3.1 The principal aim of the drainage strategy is to provide functional drainage systems which will satisfy the surcharge and flooding criteria expressed in Section 4 of this report.

2.3.2 In addition to the key requirement of providing functional drainage, the design will aim to satisfy the following criteria where reasonably practicable:

- Control run-off at or close to where it hits the ground;
- Reduce the rate of run-off leaving the site and discharging to nearby watercourses (rivers, sea etc.);
- Use at, or near-surface drainage features wherever practicable, slowing the rate of run-off entering into below ground drainage networks.
- Provide stages of water treatment;
- Pick and combine appropriate drainage features or SuDS components to suit site constraints;
- Provide habitats for wildlife in developed areas and opportunities for biodiversity enhancement;
- Contribute to the enhanced amenity and aesthetic value of developed areas.

2.3.3 The variety of SuDS components and design options available will allow the design to consider local land use, land take, future management scenarios, and the needs of the user.

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2.3.4 Active decisions will be made that balance the wishes of different stakeholders and the risks associated with each design option.

2.4 Strategic Design Criteria

2.4.1 The drainage design will consider the following criteria:

a) Hydraulic Criteria

- Store or safely convey the run-off from exceedance storm events, without putting public or property at risk;
- Reduce if possible, or at least not increase, the pre-development risk of flooding associated with the receiving watercourse; the design will qualitatively address external flooding (Pluvial and Fluvial) to ensure that there are no detrimental effects to the existing arrangement.
- Prevent downstream stream bank and channel erosion.
- Drainage facilities to provide no surface flooding from piped networks due to a 1 in 30 year return period rainfall event, in accordance with **Table 4-1**.
- Combine permeable paving and surface drainage structures to remove water from paved surfaces with no ponding for a 1 in 30 year rainfall event.
- Construction drainage will not be covered as part of this drainage strategy.

b) Water Quality Criteria

- Reduce urban run-off pollutants and improve SW quality before discharge, either by infiltration to ground or overland flow to watercourse.

c) Amenity and Ecology Criteria

- Provide amenity and ecological benefits, wherever practicable.

d) Sustainability Criteria

- Aim to protect the environment, minimise the use of finite natural resources and energy and provide reasonable value to those involved in its design, construction and operation.

2.4.2 A key design requirement of SuDS and drainage design for external paved areas is 'Interception' – the capture and retention of the first 5 mm of every rainfall event.

2.4.3 Rainfall run-off from external paved surfaces, such as car parks and roads, can contain a range of pollutants. The highest concentration of these pollutants tends to be found in run-off from the earliest part of a rain storm.

2.4.4 Intercepting 5mm of every rain storm has positive implications for water quality and quantity, as such, interception will be implemented into the design wherever practicable (at this stage this is considered feasible for the Coronation Wood and Pillbox Field areas, but not for the Outage Store or Outline Development Zone). Providing interception storage will also contribute to the BREEAM score for each facility.

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- 2.4.5 Appropriate oil/fuel controls, such as formal oil separators or through utilising effective SuDS principles, such as permeable paving, swales etc., will be implemented into the surface water drainage networks where this is a risk of oil contaminating the surface water drainage and in accordance with guidance set out in Pollution Prevention Guidance Note 3 and The SuDS Manual (CIRIA C753).
- 2.4.6 Ground water levels, infiltration rates and ground conditions at the various proposed sites will be determined in order to propose a suitable drainage design. This strategy has made assumptions for these conditions and listed them where applicable. Where practicable, the drainage design philosophy will strive to either emulate the equivalent existing greenfield characteristics, or for brownfield areas, will look to emulate greenfield characteristics i.e. to improve the existing situation and provide betterment in drainage and flood characteristics, so that the existing drainage network is not subject to additional loading.
- 2.4.7 For facilities developed within the Sizewell B Power Station Security Perimeter (Outline Development Zone and Outage Store), the proposed facilities are not expected to increase the surface water run-off volumes and rates above the values that have previously discharged into the site drainage network (this is due to the pre- and post- development surface both being impermeable). Therefore it is anticipated the existing drainage network will not require global alteration to increase capacity and there will be no increased risk of surface flooding.
- 2.4.8 For facilities served by a direct drainage connection into the existing network, there would be no net increase in flow rates or volumes compared to the previous existing conditions at the site. This will require formal confirmation with respect to the viability (condition and performance) of the existing drainage network. Assurance will be required that there is sufficient capacity to accommodate the anticipated surface water such that there is no increased risk of surface flooding and that the safety case is not adversely affected. Where this is not possible, the affected existing pipework may need to be locally upgraded / upsized to accommodate any increased run-off volume, although no such network reinforcement is currently envisaged to satisfy this drainage strategy.
- 2.4.9 Flow controls may be incorporated where the surface water is proposed to be discharged into the existing site drainage network, to limit the discharge rate to the equivalent brownfield / greenfield run-off rate.

3. EXISTING SURFACE WATER DRAINAGE

3.1.1 The existing surface water drainage network is illustrated in **Figure 3-1**, and comprises northern and southern branches. Both branches drain to the main site surface water outfall to sea at the north east of the Sizewell B site as annotated. The northern branch comprises a pumping station to discharge surface water arising from facilities outside the Sizewell B Station Perimeter at a lower level (including the existing outage car park and southern portion of the western operational car park) to the surface water network within the Sizewell B site. The southern branch is entirely a gravity sewer network.

3.1 Southern (Gravity) Branch

3.1.1 Through working knowledge of the existing site conditions and the recent construction of the Dry Fuel Store, an impermeable surface previously draining to the site networks was replaced with a new building draining to soakaways. The amount of impermeable area draining into the existing site surface water drainage network was therefore reduced by approximately 0.820 ha through the incorporation of soakaway systems, with 0.715 ha being removed from the existing southern drainage branch. This area is considered as available to the Relocated Facilities project as a part of the add / omit balance to achieve no net increase in impermeable area connected to the site network.

3.1.2 In addition to the assumption of balancing impermeable drainage areas, the following also require addressing before the drainage assumption can be fully qualified at Detailed Design Stage:

- Identify any additional areas that may already be contributing to the southern branch of the existing drainage network;
- Survey the current condition of the existing drainage network;
- Determine any spare capacity of the existing network, whether it is capable of supporting any additional loading;
- Assess any potential localised 'overloading' of the existing surface water drainage network and therefore increased risk of flooding.

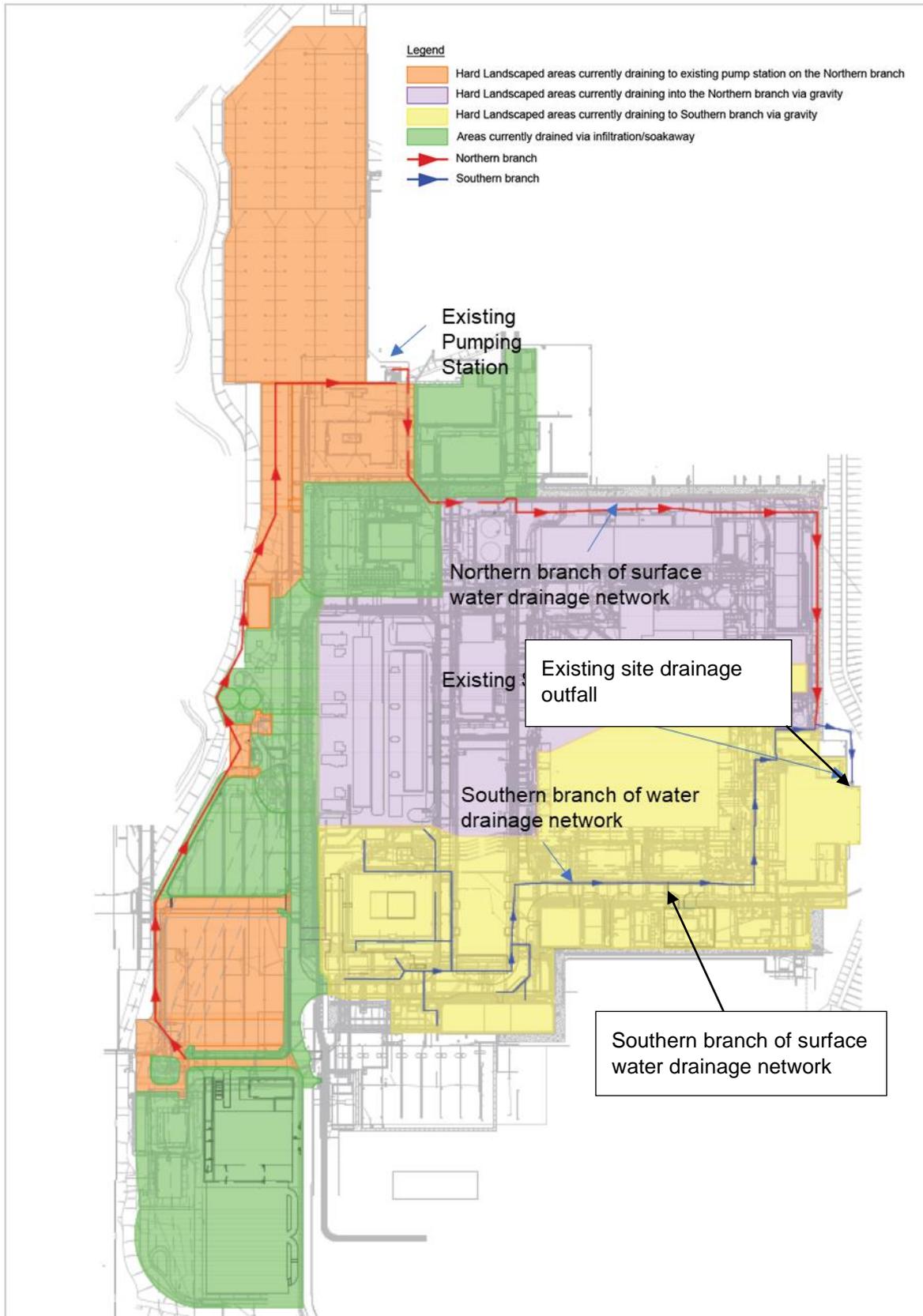


Figure 3-1: Existing Surface Water Drainage Network

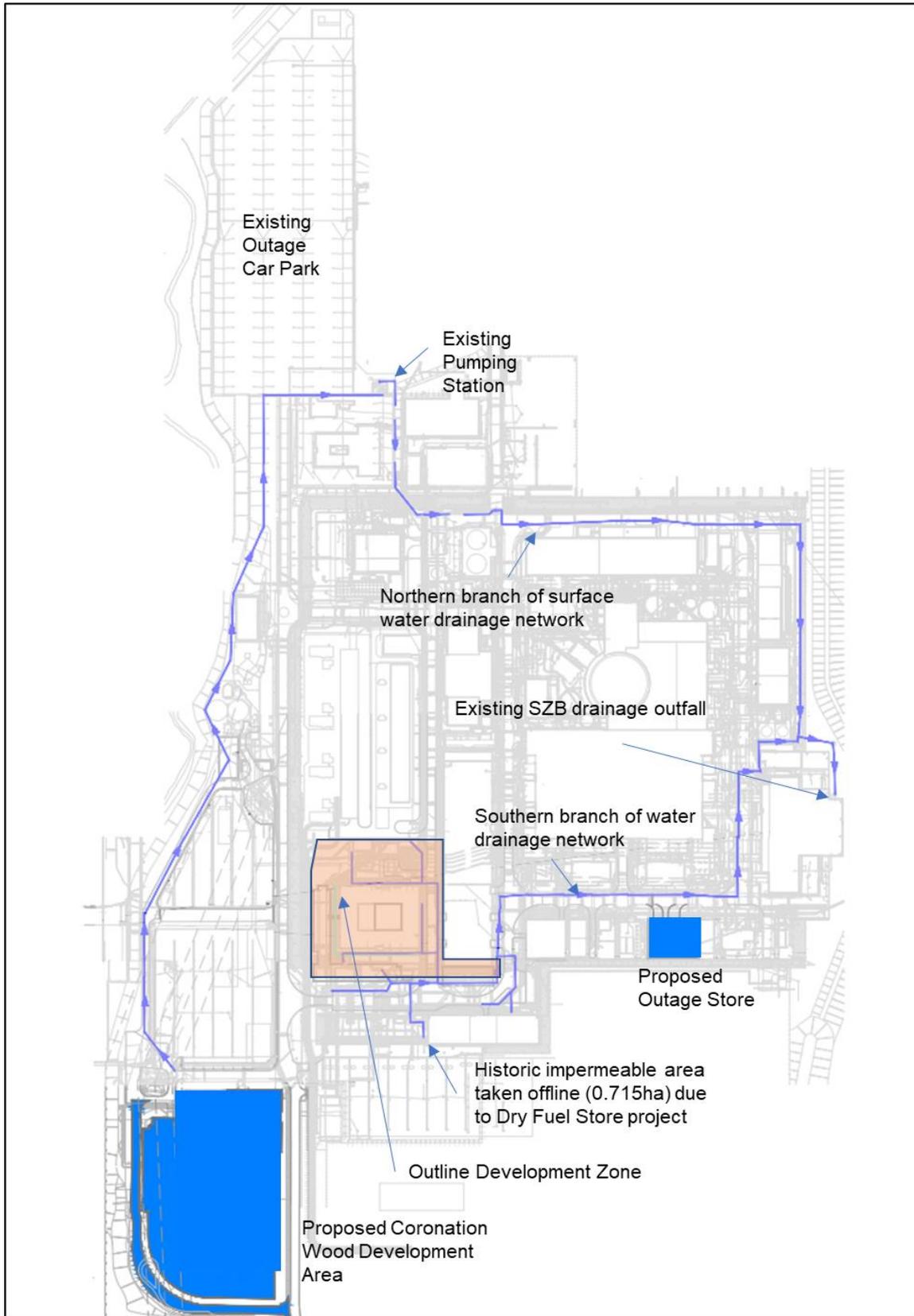


Figure 3-2: Proposed Facilities (excl. Pillbox Field Outage Car Park)

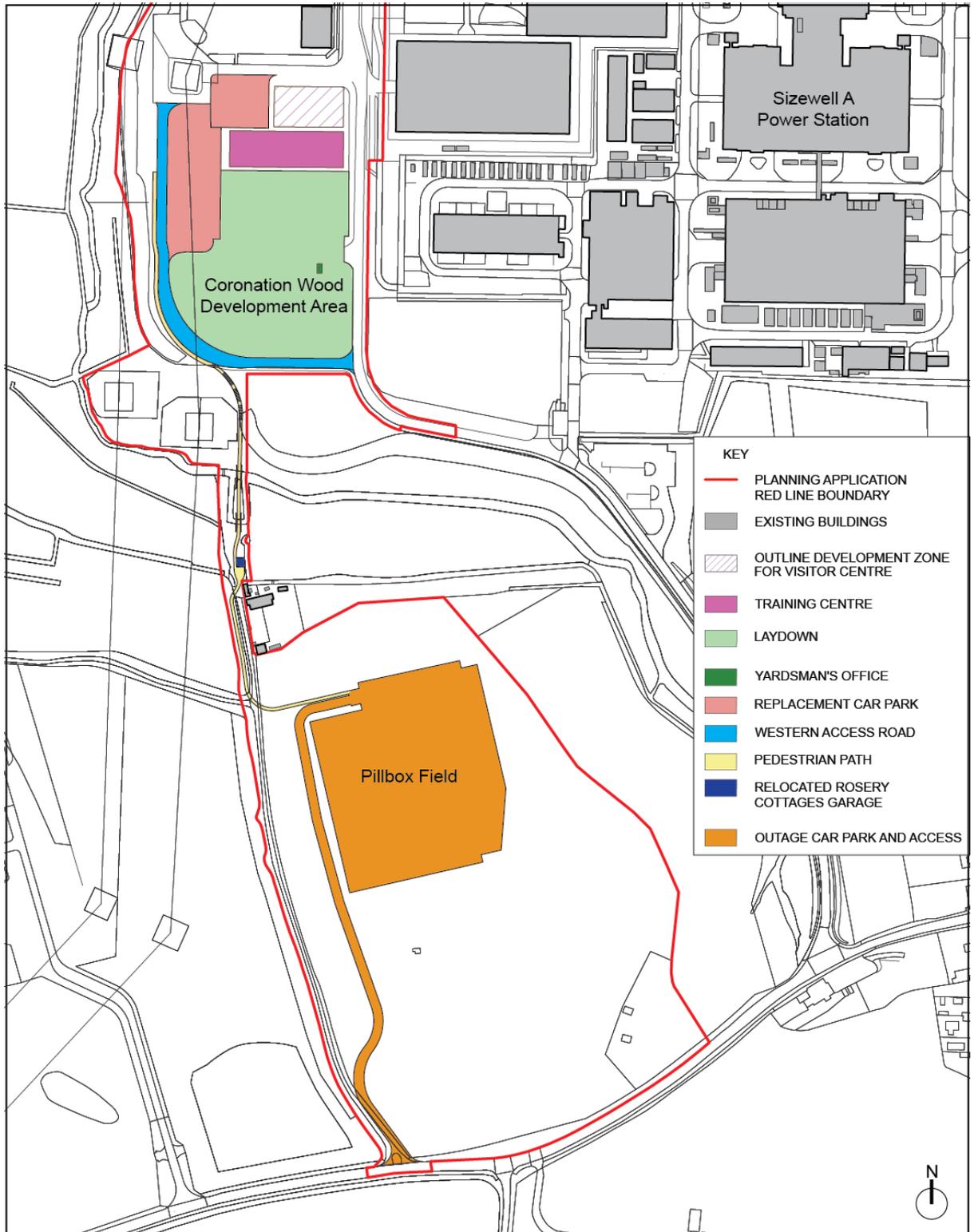


Figure 3-3: Proposed Location of the Pillbox Field Outage Car Park Facility

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3.2 Northern (Pumped) Branch and Existing Pumping Station

- 3.2.1 The Northern branch, illustrated in red in **Figure 3-1** drains areas within the Sizewell B Power Station Perimeter and hardstanding areas outside of the Perimeter, to the west.
- 3.2.2 Areas shown in amber in **Figure 3-1** are drained via gravity to the existing pumping station and oil separators located to the north of the site. The run-off is pumped up onto the Sizewell B Power Station platform and then conveyed via gravity to the existing surface water outfall to sea.
- 3.2.3 The area shown in purple in **Figure 3-1** drains via gravity to the northern branch and in turn to the outfall.
- 3.2.4 Areas shown in green are drained by infiltration, either through designed soakaways or as soft landscaped areas, and do not drain to the existing site drainage network.
- 3.2.5 Proposals for managing the removal of the pumping station are outlined in Section 8.

4. DESIGN PARAMETERS

- 4.1.1 Unless noted otherwise the surface water drainage networks for all proposed and relocated facilities will be designed to the following requirements (based on Summer/Winter storm events from 15 minutes to 1440 minute duration).
- 4.1.2 All return periods will have a climate change allowance applied, in accordance with the Environment Agency Guidance issued February 2016, to allow for anticipated changes in the peak rainfall intensity.
- 4.1.3 As indicated in **Figure 4-1**, the Sizewell B Power Station site and Pillbox Field Outage Car Park lie outside Flood Zones 2 and 3, and therefore can be considered to exist within Flood Zone 1, equating to land having a less than 1 in 1,000 annual probability of river or sea flooding.
- 4.1.4 The footpath from the Outage Car Park will cross flood zone 3, however, it will be constructed at ground level. Occasional flooding of the path is considered acceptable due to the infrequency of flood events coexisting with outages and consequent use of the path. Crossings of permanent watercourses will use timber bridges as to not obstruct flood water. A small section of the access road to the Outage Car Park will be situated in flood zone 2, this means the road will be usable without risk of flooding for up to a 1 in 100 year rainfall event. This is deemed suitable due to the combination of low frequency flooding events and use expected for the Outage Car Park.
- 4.1.5 Any surface flooding under extreme storm conditions will be directed to locations that avoid damage to critical areas, services, structures or buildings. To identify any flood routes a detailed analysis of the digital terrain model needs to be combined with flow path analysis. This is not a requirement at drainage strategy or concept design stage, but it is something we recommend is carried out at the earliest opportunity as the design progresses to identify the location of any sacrificial flood areas.

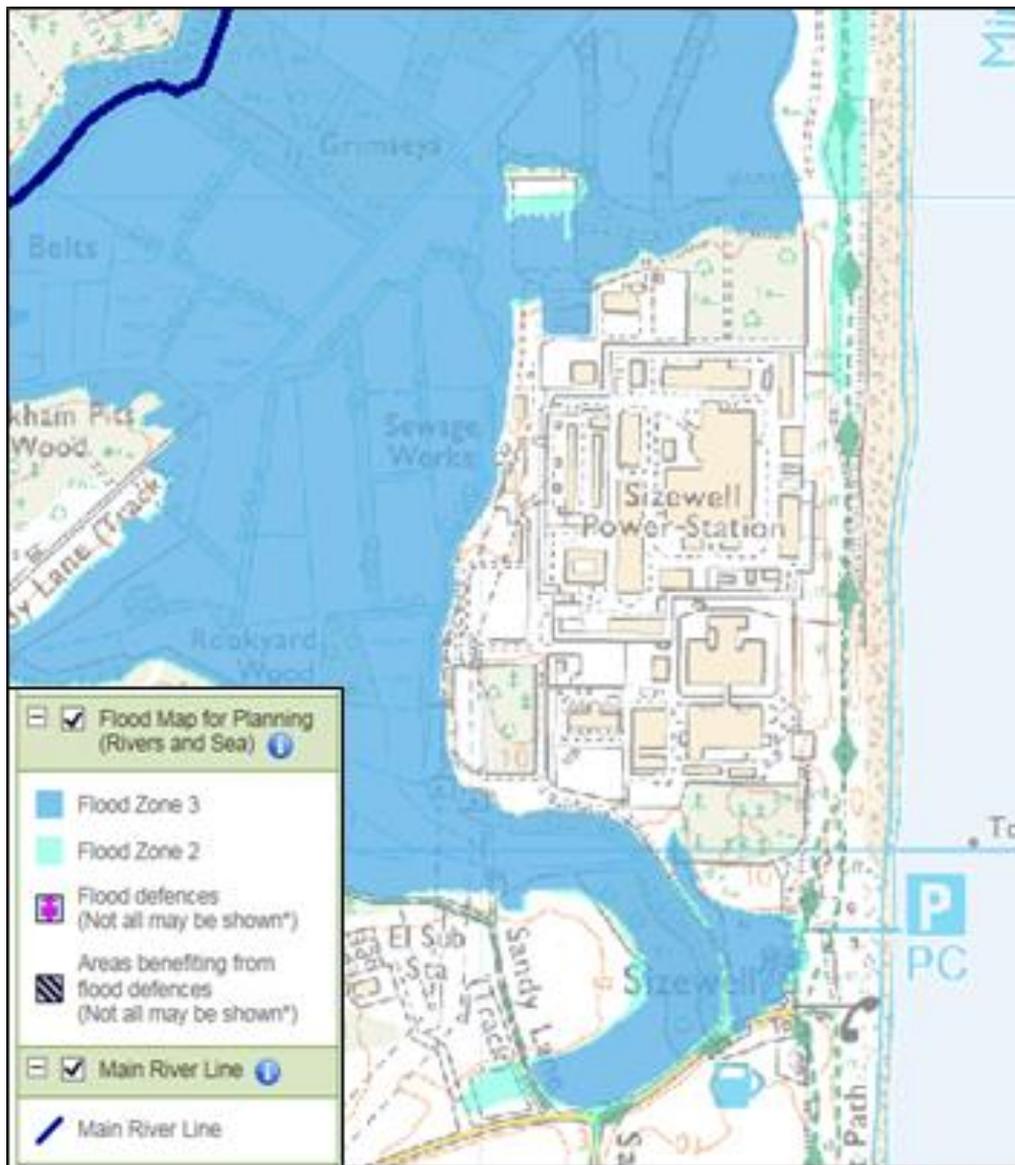


Figure 4-1: Flood Map (Rivers and Sea) [Environment Agency]

- 4.1.6 In accordance with Environment Agency guidance it is recommended a 10% climate change allowance is accommodated for within the design. This is based on a low flood risk vulnerability classification and total potential change anticipated for the '2050s'.
- 4.1.7 The climate change recommendations within this Drainage Strategy have not yet changed from those issued by Government at the time the original Drainage Strategy was produced. Climate change guidance is currently under review (UKCP 2018). Careful consideration should be made for any changes to climate change recommendations that could occur prior to the detailed design stage.

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Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper end	10%	20%	40%
Central	5%	10%	20%

Figure 4-2: Peak Rainfall Intensity Allowance in small and urban catchments (use 1961 to 1990 baseline) [Environment Agency]

Table 4-1: Surface Water Design Parameters

Return Period (Years)	Drainage Criteria	Description
1	No surcharging above pipe soffits.	The highest probability event to be specifically considered to ensure that flows to the watercourse are tightly controlled for frequent events. This criterion aims to ensure the morphological conditions in the stream remain the same.
30	No surface flooding.	A useful intermediary event for which to assess on-site system performance, because of its relevance for adoptable pipework design (e.g. Sewers for Adoption requirements). Upon any pipes becoming surcharged, surface water will be accommodated within chambers. However it will be ensured that the surface water level within the chambers remains 0.3m below the top of the chamber.
100	Controlled flooding to sacrificial external areas.	Represents the boundary between high and medium risks of fluvial flooding defined in the NPPF. This limit recognises that it is not practicable to fully limit flows for most exceedance events. Overland flow will be managed through existing and proposed surface topography to ensure that flood flows are directed away from critical site infrastructure.
200	Exceedance event (if required).	A useful event to assess/predict where surface water would flow in an exceedance event.

- 4.1.8 Proposed drainage networks will be designed to accommodate the predicted flows for all rainfall return periods listed above. Further, to ensure self-cleansing of pipes during smaller storms, the minimum pipe velocities will be 1 m/s at full pipe flow.
- 4.1.9 WinDes 'Microdrainage' 2015 will be used to assist the design of the below ground pipework. Following the Flood Studies Report (FSR) method, using Sizewell, Suffolk as the location, an M5-60 and 'r' ratio of 18.2 mm and 0.4 respectively will be used to predict the various storms in which the drainage infrastructure will be subject to, including varying storm intensities and return periods.

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- 4.1.10 It is also recommended that the Flood Estimation Handbook 13 (FEH13) method is utilised when determining the design hydrology. Since the inception of this Drainage Strategy in 2016 FEH13 hydrology has been introduced more widely into drainage design. The impact of FEH13 in this part of the country is known to create larger storms at longer return periods. The longer return periods (and particularly for checking exceedance events) utilising the FEH13 methods produce higher values in this part of the country. It is therefore recommended that during the detailed design stage the hydrology for both methods are used. FSR predominantly for detailed design and FEH13 for checking for exceedance and identifying flood channel routes.
- 4.1.11 The long-term use and end-state scenarios of this site indicate a design life of 50-60 years. The types of construction recommended e.g. porous car-parks, infiltration structures etc. normally have a refurbishment requirement of between 20-30 years. As the likely use of these structures is “fairly light” with a lot of roof drainage with sediment traps the refurbishment in this case is likely to be of longer increment than usual. It would therefore seem appropriate that a maintenance and refurbishment requirement is built into the design life profile.

a) Attenuation

- 4.1.12 As outlined in Section 2, attenuation tanks will not be adopted for facilities within the Sizewell B Station Perimeter, as the run-off will be conveyed directly to the site drainage network and thence to the marine outfall.
- 4.1.13 Where required, and for facilities outside of the Sizewell B Power Station, a simple model will be used to assess the preliminary attenuation storage and run-off volumes required. The proposal will be designed to cater for the 100 year critical event, with an additional allowance of 25% to allow for this approximation. This is in accordance with CIRIA C753 the SuDS Manual.
- 4.1.14 The rate of discharge of the urban run-off will be limited, where practicable, to the equivalent Greenfield or Brownfield run-off rate for the site, as appropriate to the current/existing site conditions, via the provision of attenuation storage and/or flow restrictors (such as below ground tanks and hydro-brakes). For Brownfield sites the existing surface water run-off rate will be determined and reduced as far as reasonably practicable to the Greenfield run-off rate. The flow control will constrain the rate of discharge, the attenuation storage will be employed when the rate of inflow from the upstream drainage system is greater than the subgrade infiltration rate or allowable rate of discharge to the downstream drainage network. The attenuation storage will empty once the event has passed.

b) Soakaways

- 4.1.15 Soakaways will only be adopted for facilities outside of the Sizewell B Station Perimeter and will be designed in accordance with CIRIA SuDS Manual (C753).
- 4.1.16 A factor of safety will be applied to the observed/assumed infiltration coefficient to reflect the possible reduction to the rate of infiltration over time and to account for any loss of efficiency over the design life of the soakaway, particularly if effective pre-treatment is not included within the design and / or system maintenance is poor.

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- 4.1.17 In accordance with CIRIA C753 the following factors will be used to account for possible loss of infiltration capacity through the design life of the system. The following figures are not based on actual observations of performance loss.

Table 4-2: Factor of Safety for Infiltration Systems

Size of Area to be Drained	No damage or inconvenience	Minor inconvenience (e.g. surface on car parking)	Damage to buildings or structures, or major inconvenience (e.g. flooding of roads)
< 100m ²	1.5	2	10
100 – 1000 m ²	1.5	3	10
> 1000 m ²	1.5	5	10

- 4.1.18 As outlined in Section 2, soakaways will only be considered for facilities outside of the Sizewell B Station Perimeter. Where a soakaway structure is proposed, a factor of safety dependent upon the consequence of failure, as indicated in **Table 4-2**, will be assessed.
- 4.1.19 The FoS is applied to the infiltration rate / permeability of the ground, to mimic any potential loss of performance over time. For example, a FoS of 1.5 applied to the assumed and conservative infiltration rate of 1×10^{-5} m/s, results in the following infiltration rate being used in calculations: $(1 \times 10^{-5}) / 1.5 = 6.7 \times 10^{-6}$ m/s.
- 4.1.20 To ensure the system's readiness to deal with a rainfall event, the infiltration rate from the system should be sufficient, so that the storage becomes half-empty within 24 hours. Where practicable, soakaways will be placed to ensure that the seasonally high groundwater table is at least 1m below the base of the soakaway. Infiltration systems will also be installed a minimum of 5m away from any foundations, including basements.
- 4.1.21 When designing permeable paving systems a global FoS of 10 will be applied to the assumed infiltration rate in accordance with CIRIA C753 The SuDS manual and industry best practice.
- 4.1.22 The boreholes carried out during a soil investigation in 2016 did not encounter ground water at shallow depths. Therefore, despite the fact that groundwater has a tendency to vary when in close proximity to the sea, the expected groundwater level is sufficiently deep that it would appear not to present any impediment to infiltration techniques.

4.2 Overarching Assumptions

- A conservative infiltration rate of 1×10^{-5} m/s has been assumed in determining soakaway volumes. This has been based on values from working knowledge of the Sizewell B Power Station. The infiltration rate requires qualification prior to progression of the design through facility specific on-site infiltration testing.
- The groundwater level has been assumed to be at +1.0m AOD based on existing site knowledge. It is recommended that checks are also made against the

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proposed Sizewell C Power Station geotechnical data and the groundwater model. The widespread use of soakaways and infiltration techniques can only be effective if there is clearance from groundwater level below which it is assumed that strata is saturated.

- Through recent site knowledge from construction of the Dry Store, it has been assumed that the contamination levels on site are such that surface water is allowed to infiltrate into the surrounding ground.
- It has been assumed that surface water run-off from relocated facilities within the Sizewell B Station Perimeter can be discharged into the existing site wide drainage network, provided that the total additional run-off is less than the amount previously removed from the southern branch as a result of the Dry Store Project (approximately 0.715ha). Connections will also be made at appropriate locations, i.e. downstream of any previous run-off removal. Further information associated with the assumption has been listed in Section 3.1.

5. CONSIDERATION OF SIZEWELL B RELOCATED FACILITIES END STATES

- 5.1.1 The Planning Application seeks consent to a scheme which comprises the relocation of existing facilities and functions. Where an existing facility is to be relocated, then the scheme includes for the demolition or removal of the existing facility which is rendered redundant by the scheme. The space occupied by the redundant asset will be landscaped to reflect the surroundings as part of the scheme.
- 5.1.2 The phasing of the development, and timescales for removal of assets which are rendered redundant by the development, has not been fully determined. Where a facility is to be removed under this scheme, then it will be returned to the end-state within 5 years of the transfer of function to the new asset which replaces it.
- 5.1.3 In the event that Sizewell C Power Station is not developed, or that individual new Sizewell B Relocated Facilities are not developed, then existing facilities whose re-provision or relocation has not commenced will remain as existing. The following paragraphs provide further clarity on the proposals for individual assets or asset groups in the event that a decision is taken not to progress the development of Sizewell C prior to the completion of work on the asset or asset group:
- **Outage Car Parking**

Work on the Pillbox Field site would be ceased. Areas disturbed by aborted work would be reinstated to soft landscape.
 - **Visitor Centre**

The Sizewell B Visitor Centre would remain in its temporary location within the Technical Training Building. The area allocated for a new Visitor Centre within Coronation Wood would be utilised for parking and allocated as a 'future development site' for a new Sizewell B Visitor Centre when funding is available. A new design would be required for this and submitted to the planning authority.
 - **Northern Compound**

If a decision not to progress Sizewell C were taken prior to tree removal at Coronation Wood, the development of this area to form car parking and laydown under this Planning Application would be aborted. If such a decision were taken after tree removal had begun, EDF Energy (NGL) would continue to develop the site for Laydown use and restore the existing Northern Compound to landscape.

6. FACILITIES WITHIN THE SIZEWELL B STATION PERIMETER

6.1.1 Due to the congested nature of below ground utilities within the Sizewell B Station Perimeter and in accordance with a requirement from Sizewell Station, refer to Section 1, the implementation of large SuDS features, in particular soakaway systems, has been deemed impracticable. Where this decision has been made, due justification in accordance with the surface water drainage hierarchy outlined in Section 2 has been given.

6.1 Proposed Outage Store (SOS)

6.1.1 The proposed drainage strategy for this facility is to collect run-off at roof level and convey the water directly into the existing site wide drainage network, as shown in **Figure 6-1**. The routes for below-ground drainage pipes shown below are indicative only and are subject to change during detailed design.

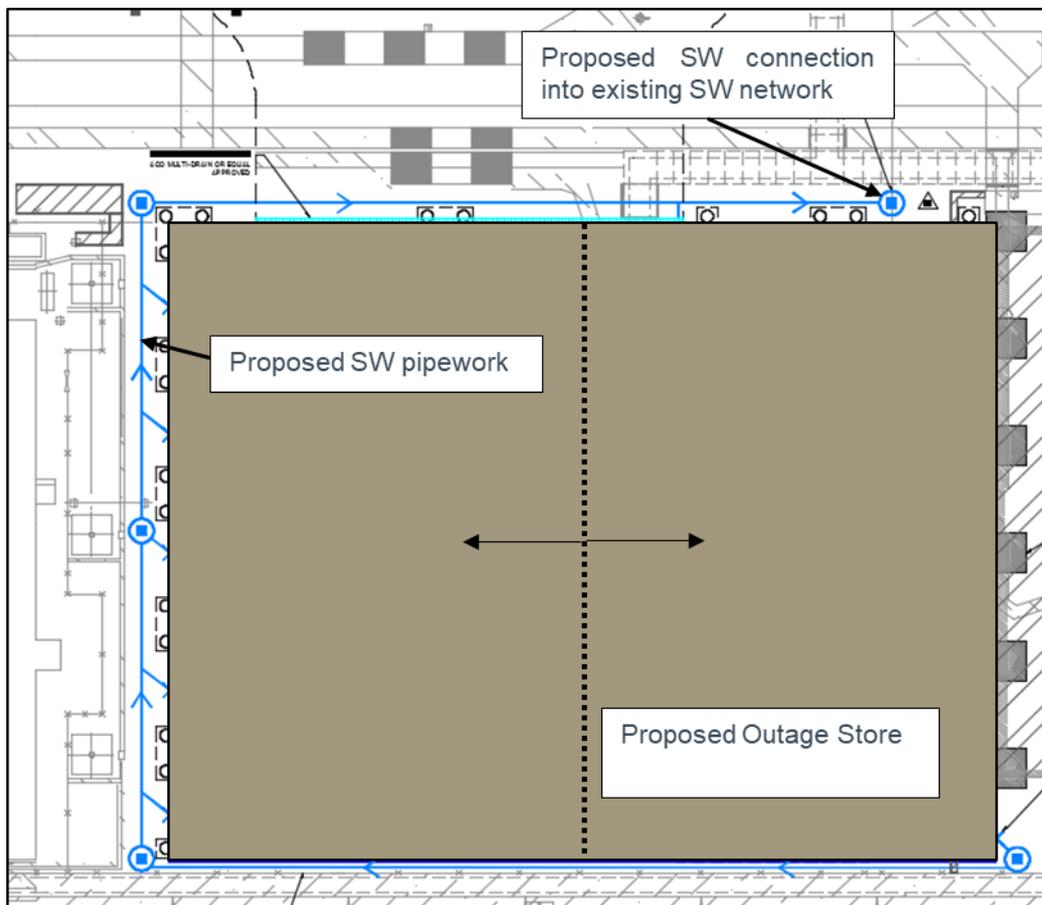


Figure 6-1: Proposed Outage Store Drainage Schematic

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a) Surface Water Drainage Hierarchy

Table 6-1: Proposed Outage Store Surface Water Drainage Hierarchy

Drainage Principle	Feasibility	Reason
1. Rainwater Harvesting	X	Due the low occupancy of this building, in addition to the congested nature of utilities at and around the proposed building, rainwater harvesting has been deemed impracticable.
2. Infiltration	X	Due to the volume of below ground utilities infiltration is deemed impracticable. The development will not increase the amount of impermeable surfacing and therefore infiltration is not necessary.
3. Attenuation (ponds, swales)	X	Due to the lack of space at and around this facility green attenuation features will not be considered.
4. Attenuation (tanks)	X	As point 2. Due to the volume of below ground utilities and no alteration to the permeable-impermeable land balance, attenuation is deemed impracticable.
5. Discharge – watercourse	X	Discounted - no nearby watercourses.
6. Discharge – SW drain	✓	Surface water currently drains into the site wide surface water network via below ground pipework. The proposed facility does not alter the pre and post development drainage characteristics and so conveyance of SW run-off is proposed via below ground pipework connecting into the existing site wide drainage network (Refer to Figure 6-1).
7. Discharge – Combined drain	X	Discounted - there are no known combined drains in the vicinity.

b) Surface Water Drainage Design

- 6.1.2 The Proposed Outage Store involves the development of a new facility in the location of an existing building. The proposed facility will be located on impermeable land. The development will not result in an increase in impermeable surfacing, and therefore will not alter the balance between permeable and impermeable land.
- 6.1.3 The surface water will be drained from the roof via downpipes. Several downpipes are proposed along the western edge of the facility due to availability of below ground space for pipework. Runoff associated with the eastern portion of the roof will be collected via traditional guttering and conveyed to the north east of the facility via above ground pipework, due to the close proximity of the neighbouring existing building and a lack of available below ground space for pipework.
- 6.1.4 Channel drains may need to be incorporated in order to drain the surface water away from the facilities foundations. Trapped outfalls and catchpits will be proposed to reduce any floating debris or silt.
- 6.1.5 Due to the congested nature of below ground utilities at the proposed location of the Proposed Outage Store and in accordance with a requirement from the Sizewell B Power Station, refer to Section 1, it is deemed impracticable to incorporate Sustainable Drainage Systems (SuDS) features such as swales and ponds.

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- 6.1.6 The drainage design will require the surface water to be transported via below ground pipework to the existing sewer network, through a connection with a nearby surface water manhole/chamber.

c) Assumptions

- The development of the Proposed Outage Store facility does not alter the balance between permeable and impermeable land, and therefore does not impose additional surface water loading on the existing site drainage system. Therefore, the existing surface water network in the vicinity of the Proposed Outage Store is adequately sized for the development. This could be validated via assessment of the existing drainage network.

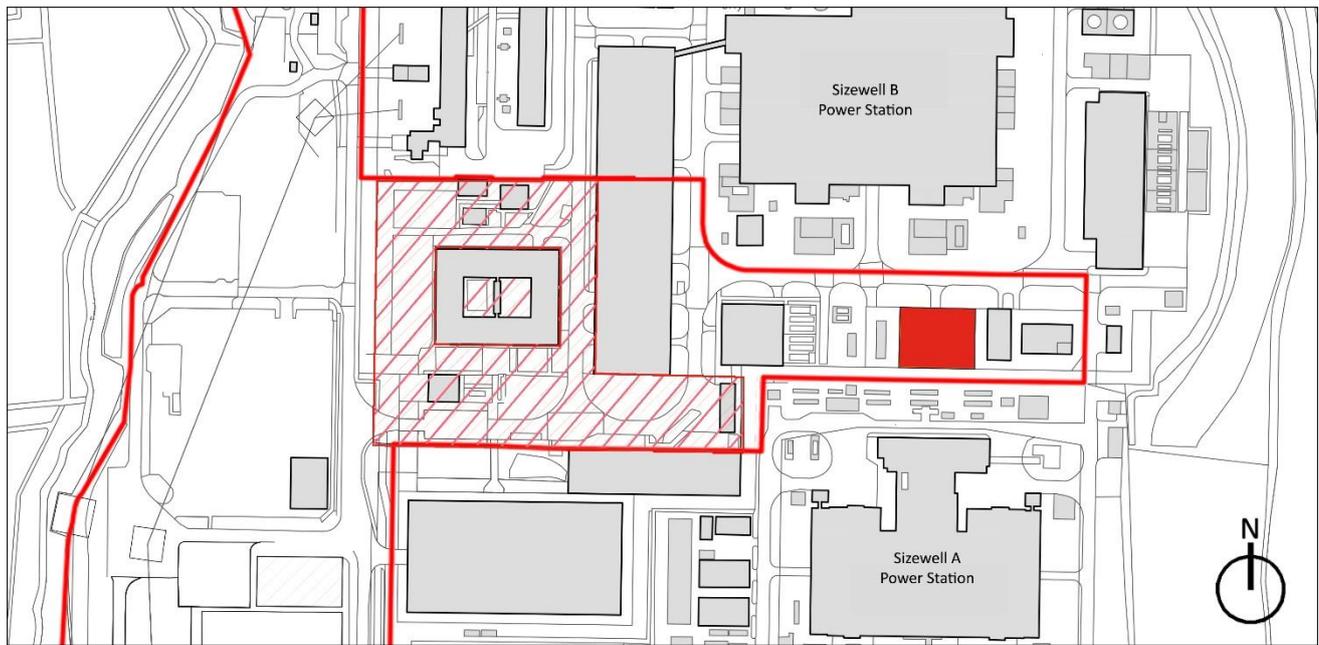
d) Constraints

- Underground utilities within the vicinity of the Proposed Outage Store are congested, therefore consideration will be made when locating below ground surface water drainage infrastructure.

6.2 Outline Development Zone

- 6.2.1 Offices, Canteen and Welfare Facilities within the station form part of the Outline Development Zone. This zone is illustrated in **Figure 6-2**.
- 6.2.2 Facilities within the Outline Development Zone are being submitted for Outline Planning approval, and include a minimum level of detail on:
- what the buildings will be used for
 - minimum and maximum building sizes
 - where entrances to the site will be.
- 6.2.3 Facilities within the Outline Development Zone will follow the overarching drainage principles and strategy defined in Section 2.
- 6.2.4 These principles being “drainage direct to existing site piped networks, with exceedance flows addressed through overland flow.”

NOT PROTECTIVELY MARKED



Key

-  Existing Buildings
-  'Outline Development Zone'
-  Outage Store
-  Planning Application Red Line Boundary

Figure 6-2: Development Areas within the Sizewell B Power Station Security Perimeter

7. FACILITIES OUTSIDE THE SIZEWELL B STATION SECURITY PERIMETER

- 7.1.1 This Section outlines the specific drainage strategies to be applied to proposed facilities outside of the main Sizewell B Power Station site perimeter.
- 7.1.2 In general there is greater scope to implement sustainable drainage (SuDS) features, such as swales and soakaways. Discharge of direct run-off to the Sizewell Drain watercourses, other than in exceedance rainfall events, will be avoided. A reasoned justification has been given where the drainage strategy differs from this stance.

7.1 Area Immediately West of Sizewell B Power Station

- 7.1.1 The existing western operational car park will be supplemented by additional car park spaces located at the site of the current SZA reservoirs, as illustrated in **Figure 3-3**.
- 7.1.2 A relocated Outage Car Park will be provided at Pillbox Field, as also illustrated in **Figure 3-3**.
- 7.1.3 The sites for the proposed car parking facilities both currently comprise permeable surfaces and so any development at these sites has the potential to alter the existing drainage characteristics.
- 7.1.4 The following sections outline the drainage strategy to be adopted for these two sites to ensure the change in drainage characteristics is managed effectively.

a) Proposed Replacement Car Park and Laydown

- 7.1.5 An at-grade car parking facility and laydown area are proposed to be located at a site which currently contains the redundant Sizewell A reservoir tanks (2no.), soft landscaping and Coronation Wood.
- 7.1.6 The proposed drainage strategy for these facilities is to drain the surface water run-off through infiltration techniques, such as heavy duty permeable block paving and/or catchpit soakaways. This philosophy will ensure no additional impervious areas are added to the existing side wide drainage network.
- 7.1.7 Prior to construction of the proposed facility, the Sizewell A reservoir tanks, soft landscaping and woodland will be suitably demolished/removed and earthworks will be performed to attain an adequate foundation layer.
- 7.1.8 Where a below ground soakaway is required, the most appropriate location would be within the vicinity of the existing Sizewell A reservoir tanks, due to the extent of earthworks that will be undertaken. In addition, this area would likely only be subject to typical car park loading instead of heavy, localised laydown loads. This is not proposed at this stage

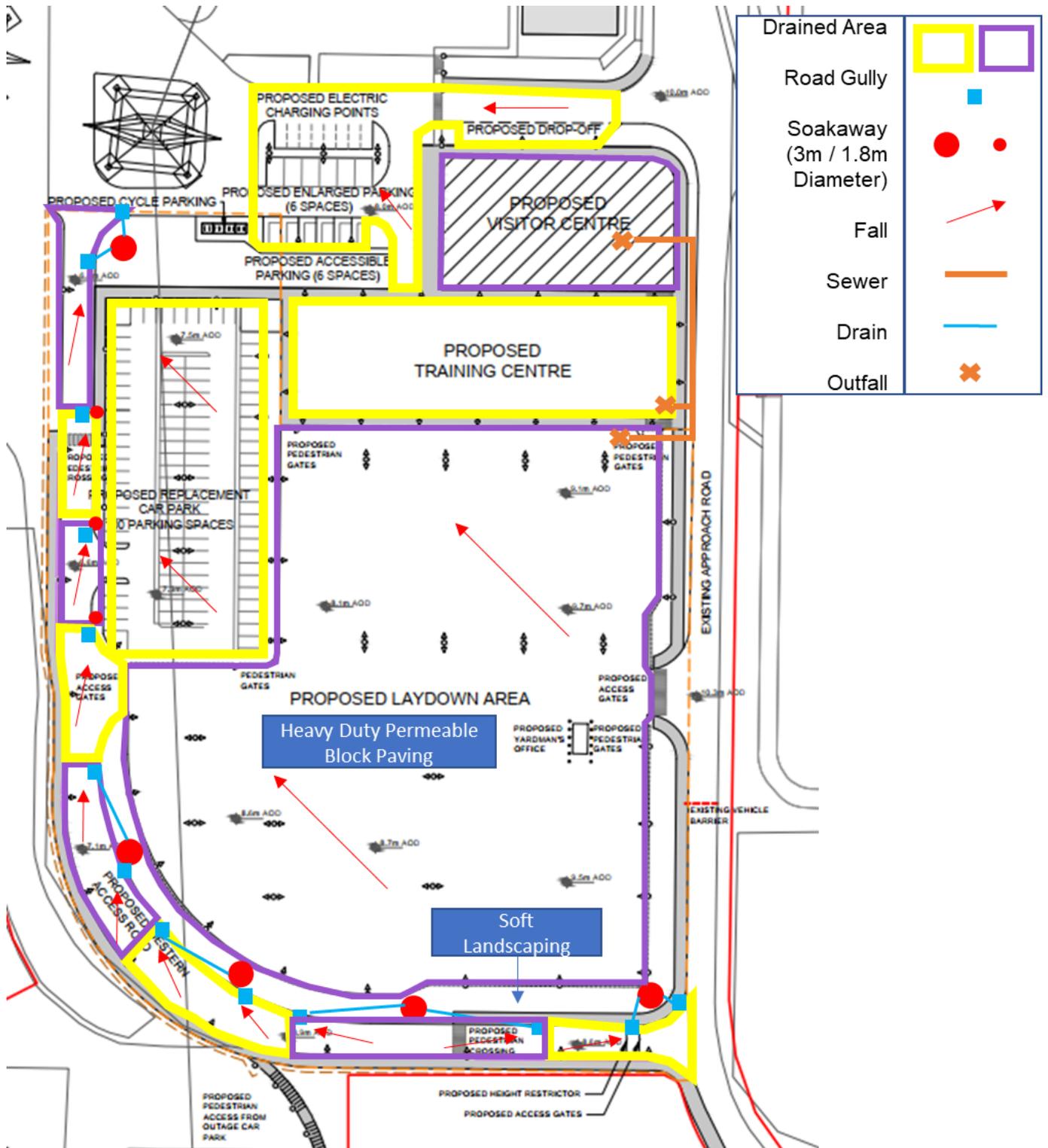


Figure 7-1: Car Park and Laydown Area Proposed Drainage Strategy Schematic

NOT PROTECTIVELY MARKED

i. Surface Water Drainage Hierarchy

Table 7-1: Proposed Car Park and Laydown Surface Water Drainage Hierarchy

Drainage Principle	Feasibility	Reason
1. Rainwater Harvesting	X	No permanent occupancy therefore deemed to be not viable.
2. Infiltration	✓	Permeable paving is proposed to enable surface water to infiltrate directly into the ground. The run-off from the car park and laydown area could be conveyed via channel drainage and below ground pipework to soakaway chambers located adjacent to the proposed car park. Oil / hydrocarbon / silt interception systems (i.e. permeable paving or formal oil separator) will be in place due to the close proximity of a SSSI.
3. Attenuation (ponds, swales)	✓ (see detail)	Swales, or similar features, could be incorporated along the western boundary of the car park and laydown area within the soft landscaping (as shown in Figure 7-1), to provide support drainage for overflows. These can be used to collect, convey, infiltrate or attenuate run-off. These however will not be adopted as conventional infiltration is expected to provide an adequate solution.
4. Attenuation (tanks)	✓ (see detail)	Whilst a below ground attenuation tank with a volume of approximately 1600m ³ would be required to attenuate run-off and discharge into the site drainage network at 1 l/s. These however will not be adopted as conventional infiltration is expected to provide an adequate solution.
5. Discharge – watercourse	X	A SSSI runs close to the western site boundary, therefore direct discharge into any watercourses is deemed undesirable, due to strict restrictions on the water quality of the run-off discharging into it. If soakaways are deemed unviable following detailed calculations, the surface water may be indirectly discharged into the surrounding watercourses following appropriate measures to account for the volume of surface water and the presence of hydrocarbons. This is not a desired solution.
6. Discharge – SW drain	X (see detail)	If soakaways are not viable, then attenuation and discharge into the existing SW drainage network will be progressed. An existing SW chamber is located to the north of proposed facility.
7. Discharge – Combined drain	X	Discounted - there are no known combined drains in the vicinity.

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ii. Surface Water Drainage Design

- 7.1.9 The at-grade Proposed Car Park and laydown area are proposed to be situated at the current location of the Sizewell A reservoir tanks and Coronation Wood, in close proximity to a SSSI along the western boundary.
- 7.1.10 The proposed location of the car park and laydown area currently consists of permeable soft landscaped surfacing, together with derelict underground concrete structures and pipework at the proposed site of the north-west portion of the car park.
- 7.1.11 The underground infrastructure, soft landscaping and woodland will be demolished/cleared/removed and suitable measures will be employed to provide a suitable foundation layer on which the surface car park and laydown area will be situated.
- 7.1.12 Infiltration techniques will be employed, such that the development will not alter the amount of impermeable area contributing to the site surface water drainage network.
- 7.1.13 The laydown area will provide storage of predominantly dry goods, such as scaffolding components.
- 7.1.14 A permeable paving solution, using heavy duty concrete blocks will be employed for the car park and laydown surface, enabling the surface water to directly infiltrate into the underlying ground emulating the current drainage characteristics, whilst providing suitable treatment of any incidental oil spills.
- 7.1.15 There will be a small Yardsman's office located within the laydown area. Run-off from the roof of the yard office will be incorporated within the permeable pavement sub-base.
- 7.1.16 Where reasonably practicable the run-off conveyed from the roof of the Proposed Training Centre and Proposed Visitor Centre will also be incorporated within the permeable pavement sub-base.
- 7.1.17 A typical arrangement for discharging run-off into the permeable paving sub-base is illustrated in **Figure 7-2**. This image should be read as indicative of the typical features of such a system, and is not to scale nor tailored to reflect building-specific features such as internal downpipes.
- 7.1.18 It is recommended that additional trial pit and infiltration testing is carried out at the sites where infiltration structures are proposed. This is something that should be carried out before the detailed design of drainage commences.

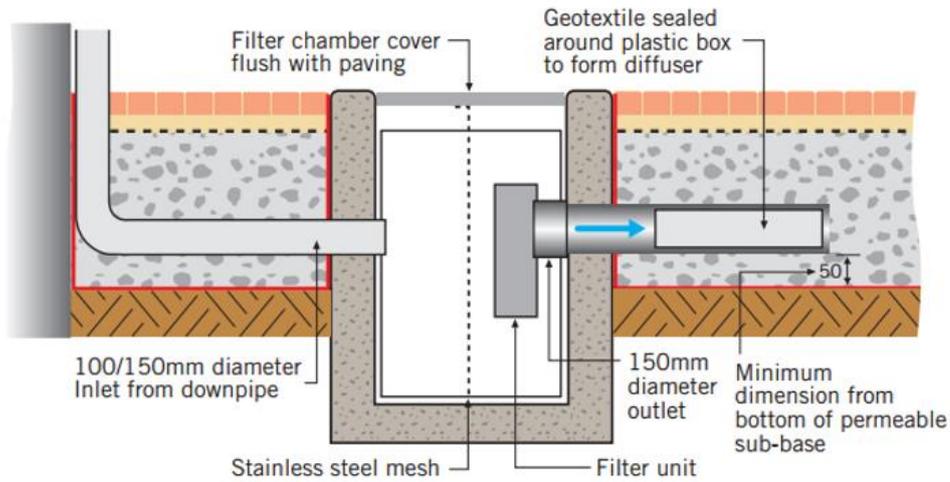


Figure 7-2: Discharge into Permeable Paving Sub Base

7.1.19 The discharge chambers will be located a minimum distance of 5m away from the Proposed Training Centre foundations. The 5m exclusion zone surrounding the Proposed Training Centre facility is illustrated in **Figure 7-3**.

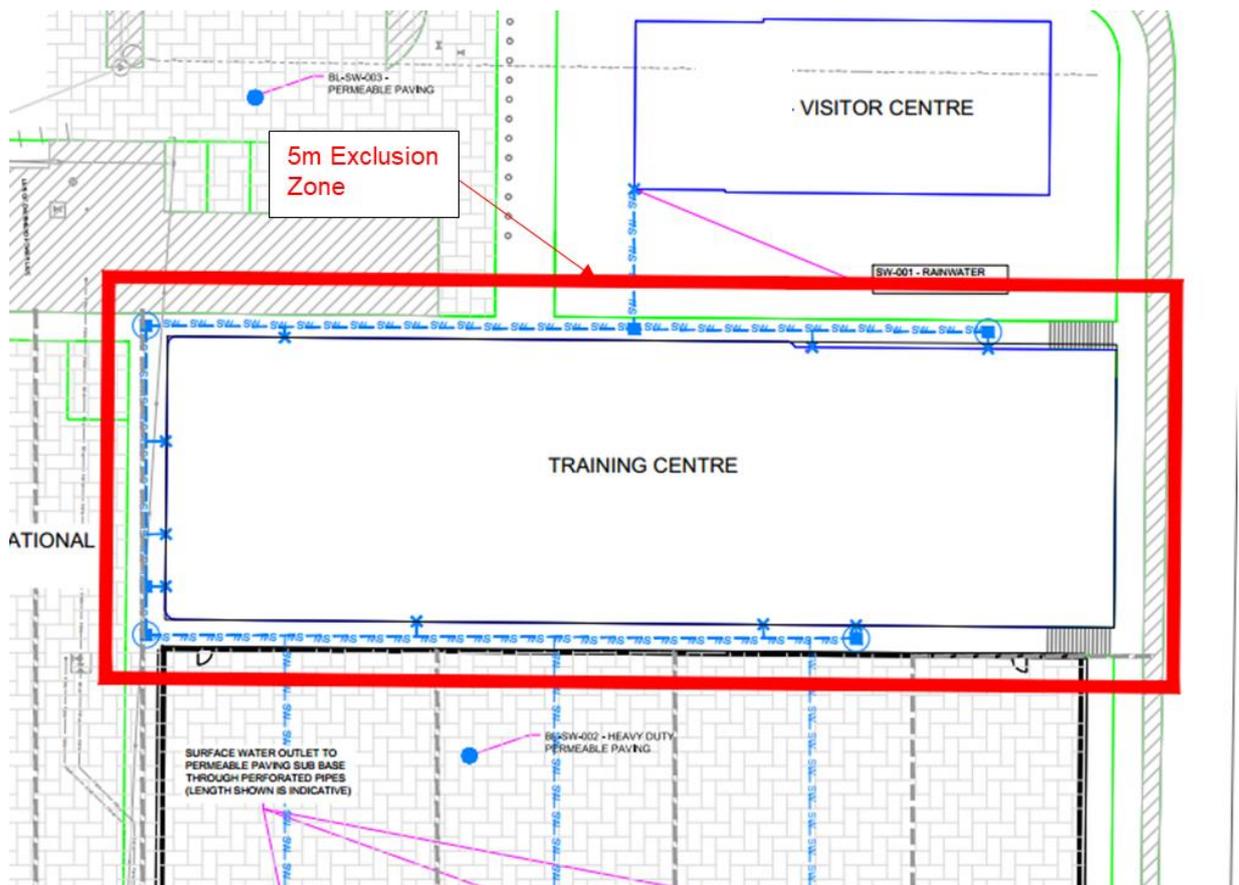


Figure 7-3: Infiltration Systems 5m Exclusion Zone

NOT PROTECTIVELY MARKED

7.1.20 The interception storage required to capture the first 5mm of every storm is approximately 65m³. This can be adequately intercepted and captured within the permeable paving and soakaways.

iii. Assumptions

- It is assumed that sufficient inspection and maintenance will be undertaken during the life of the car park and laydown facilities to ensure the condition of the permeable pavements and/or other drainage or SuDS features remain at an adequate level. An allowance for maintenance and minor refurbishment should be programmed within the detailed design stage.

iv. Constraints

- A SSSI runs adjacent to the western perimeter of the main site and therefore direct and uncontrollable discharge of surface water into the nearby watercourses prior to adequate water quality controls has been deemed un-desirable.
- If surface water is proposed to infiltrate adjacent to existing watercourses, it will be ensured that the discharging surface water quality will be at least to the same levels as the existing receiving infiltrating water by incorporating suitable water quality control measures, such as swales, permeable paving, filter drains etc.
- The SZA reservoirs currently consist of redundant underground concrete structures. It is perceived that this infrastructure will be removed or reduced to the extent whereby infiltration techniques can be employed whilst ensuring a pollutant pathway into the SSSI is not created.

b) Western Access Road

7.1.21 The proposed drainage strategy for the Western Access Road is to drain the surface water run-off through infiltration techniques. This will be achieved by directing the road surface run-off into suitably located gullies, which will subsequently convey the surface water into soakaway chambers as illustrated in **Figure 7-1**. This will ensure no additional impervious areas are added to the existing side wide drainage network.

i. Surface Water Drainage Hierarchy

Table 7-2: Western Access Road Surface Water Drainage Hierarchy

Drainage Principle	Feasibility	Reason
1. Rainwater Harvesting	X	No permanent occupancy therefore deemed to be not viable.
2. Infiltration	✓	Surface water will infiltrate into the ground via below ground soakaways. The run-off from the access road surface will be conveyed via road gullies and below ground pipework to soakaway chambers located alongside the proposed access road. Oil / hydrocarbon / silt interception systems (i.e. SuDS treatment or formal oil separator) will be in place due to the close proximity of a SSSI.
3. Attenuation (ponds, swales)	✓ (see detail)	Swales etc. could be incorporated along the eastern boundary of the access road within the soft landscaping (as shown in Figure 7-1) to provide support drainage for overflows. These can be used to collect, convey, infiltrate or

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Drainage Principle	Feasibility	Reason
		attenuate run-off. These however will not be adopted as conventional infiltration is expected to provide an adequate solution.
4. Attenuation (tanks)	✓ (see detail)	A below ground attenuation tank with a volume of approximately 170m ³ would be required to attenuate run-off and discharge into the site drainage network at 1 l/s. These however will not be adopted as conventional infiltration is expected to provide an adequate solution.
5. Discharge – watercourse	X	A SSSI runs close to the western site boundary, therefore direct discharge into any watercourses is deemed undesirable, due to strict restrictions on the water quality of the run-off discharging into it. If soakaways are deemed unviable following detailed calculations, the surface water may be indirectly discharged into the surrounding watercourses following appropriate measures to account for the volume of surface water and the presence of hydrocarbons. This is not a desired solution.
6. Discharge – SW drain	X (see detail)	If soakaways are not viable, then attenuation and discharge into the existing SW drainage network will be progressed. An existing SW chamber is located to the north of proposed western access road
7. Discharge – Combined drain	X	Discounted - there are no known combined drains in the vicinity.

ii. Surface Water Drainage Design

- 7.1.22 The proposed location of the Western Access Road currently consists of permeable soft landscaped surfacing, in close proximity to a SSSI along the western boundary.
- 7.1.23 Infiltration techniques will be employed, such that the new development will not alter the amount of impermeable area contributing to the site surface water drainage network or nearby watercourses. It is recommended that additional trial pit and infiltration testing is carried out at the sites where infiltration structures will be sited. This is something that should be carried out before detailed design of drainage commences.
- 7.1.24 It is anticipated that the proposed access road will be subject to substantial traffic loading (weight and frequency). Therefore, an impermeable paving solution, such as asphaltic surfacing, will be employed for the western access road surface.
- 7.1.25 The surface water associated with the impermeable road surface will be directed to strategically located road gullies, through the adoption of appropriate surface gradients. The surface water run-off will then be conveyed via below ground pipework into soakaway chambers located along the proposed road, therefore enabling the surface water to infiltrate into the underlying ground, emulating the current drainage characteristics.

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- 7.1.26 The interception storage required to capture the first 5mm of every storm is approximately 10m³. This can be adequately intercepted and captured within the soakaway chambers.

iii. Assumptions

- It is assumed that sufficient inspection and maintenance will be undertaken during the life of the western access road to ensure the condition of the soakaways and/or other drainage or SuDS features remain at an adequate level. An allowance for maintenance and minor refurbishment should be programmed within the detailed design stage.

iv. Constraints

- A SSSI runs adjacent to the western perimeter of the main site and therefore direct and uncontrollable discharge of surface water into the nearby watercourses prior to adequate water quality controls must be avoided.
- If surface water is proposed to infiltrate adjacent to existing watercourses, it will be ensured that the discharging surface water quality will be at least to the same levels as the existing receiving infiltrating water by incorporating suitable water quality control measures, such as soakaways, swales, filter drains etc.

c) Proposed Training Centre

- 7.1.27 The proposed drainage strategy for Proposed Training Centre is to convey run-off from roofed and surrounding impermeable areas into either soakaway chambers or into the permeable paving proposed for the car park and laydown area, as illustrated in **Figure 7-1**.
- 7.1.28 The overarching strategy for the surface water run-off associated with the Training Centre is infiltration.
- 7.1.29 The exact size, location and coordination with below ground utilities will be undertaken at the next stage of the design.

i. Surface Water Drainage Hierarchy

Table 7-3: New Training Centre Surface Water Drainage Hierarchy

Drainage Principle	Feasibility	Reason
1. Rainwater Harvesting	X	The Facility's roof structure, size and occupancy suit the use and implementation of rainwater harvesting. However, due to a lack of space at and around this plot rainwater harvesting is not proposed at this stage of design.
2. Infiltration	✓	Run-off will be disposed of by infiltration, either through the use of permeable paving or by using discrete soakaway chambers. Adequate oil/hydrocarbon/silt treatment will occur prior to infiltration due the close proximity of a SSSI.
3. Attenuation (ponds, swales)	X	Where practicable green attenuation features, such as swales and ditches, are proposed to collect, convey and

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Drainage Principle	Feasibility	Reason
		infiltrate run-off. Due to the lack of space at and around this facility green attenuation features will not be considered.
4. Attenuation (tanks)	X	A below ground attenuation tank volume of 140 m ³ would be required to attenuate run-off and discharge at 1 l/s. Not proposed at this stage.
5. Discharge – watercourse	X	A SSSI runs along the western site boundary, therefore direct discharge into any watercourses is deemed undesirable, due to strict restrictions on the water quality of the run-off discharging into it. If soakaways are deemed unviable following detailed calculations, the surface water may be indirectly discharged into the surrounding watercourses following appropriate measures to account for the volume of surface water and the presence of hydrocarbons.
6. Discharge – SW drain	X	Connection into the existing SW drainage network will be a last resort.
7. Discharge – Combined drain	X	Not proposed at this stage.

ii. Surface Water Drainage Design

- 7.1.30 The proposed site of the Proposed Training Centre currently consists of a soft landscaping and trees and therefore, following their removal and the construction of the Proposed Training Centre, will alter the balance between permeable and impermeable land.
- 7.1.31 The proposed drainage system will emulate the current Greenfield run-off characteristics, such that the existing drainage network is not subjected to additional loading.
- 7.1.32 The surface water will be drained from the Proposed Training Centre roof via rainwater downpipes. Channel drains and/or filter drains will be used to drain any surface water away from the facilities foundations.
- 7.1.33 The surface water run-off will then be conveyed via new below ground pipework into the Proposed Car Park and Laydown Area permeable paving or into soakaway chambers.
- 7.1.34 Permeable paving is proposed around the vicinity of the Proposed Training Centre to emulate pre-development drainage characteristics. This permeable paving will also provide the required interception storage.
- 7.1.35 It is recommended that additional trial pit and infiltration testing is carried out at the sites where infiltration structures will be sited. This is something that should be carried out before detailed design of drainage commences.

iii. Assumptions

- Sufficient inspection and maintenance will be undertaken during the life of the Proposed Training Centre to ensure the condition of the permeable pavements and/or other drainage or SuDS features remain at an adequate level. An allowance for maintenance and minor refurbishment should be programmed within the detailed design stage.

iv. Constraints

- An SSSI runs adjacent to the western perimeter of the main site and therefore direct and uncontrollable discharge of surface water into the nearby watercourses prior to adequate water quality controls has been deemed un-desirable.
- If surface water is proposed to infiltrate adjacent to existing watercourses, it will be ensured that the discharging surface water quality will be at least to the same levels as the existing receiving infiltrating water by incorporating water quality controls, such as filtration through permeable paving.

d) Proposed Visitor Centre (Outline Planning)

7.1.36 The Proposed Visitor Centre, part of the Outline Planning Application, will follow the same drainage strategy as the Proposed Training Centre. The overarching strategy for the surface water run-off associated with the Proposed Visitor Centre is infiltration.

7.1.37 The proposed drainage strategy is to convey run-off from roofed and surrounding impermeable areas into either the permeable paving proposed for the car park and laydown area or into a discrete soakaway chambers located alongside the Proposed Car Park as illustrated in **Figure 7-1**.

7.2 Temporary Visitor Centre

7.2.1 A temporary visitor centre is proposed to the north of the site. This facility comprises a refurbishment of the existing visitor centre.

7.2.2 As a result, the drainage characteristics at this location will not be altered. The drainage strategy for the Temporary Visitor Centre is to follow the current drainage principles.

7.3 Pillbox Field

7.3.1 Currently Pillbox Field drains by infiltration and by overland flow to the Sizewell Drains (ditches), located to the north and east of the field, as illustrated in **Figure 7-4**.

7.3.2 As a result, any proposed development at Pillbox Field may alter the drainage characteristics of the field. The proposed design will maintain the infiltration drainage characteristics of the field but may change the overland flow paths for extreme rainfall events as a result of a relatively wide and flat car park surface altering the field profile.



Figure 7-4: Pillbox Field Existing Drainage Plan

b) Outage Car Park (OUC)

7.3.3 The drainage strategy for the proposed Outage Car Park at Pill Box Field is to drain the surface water using infiltration techniques, such as porous surfacing as illustrated in **Figure 7-5**.

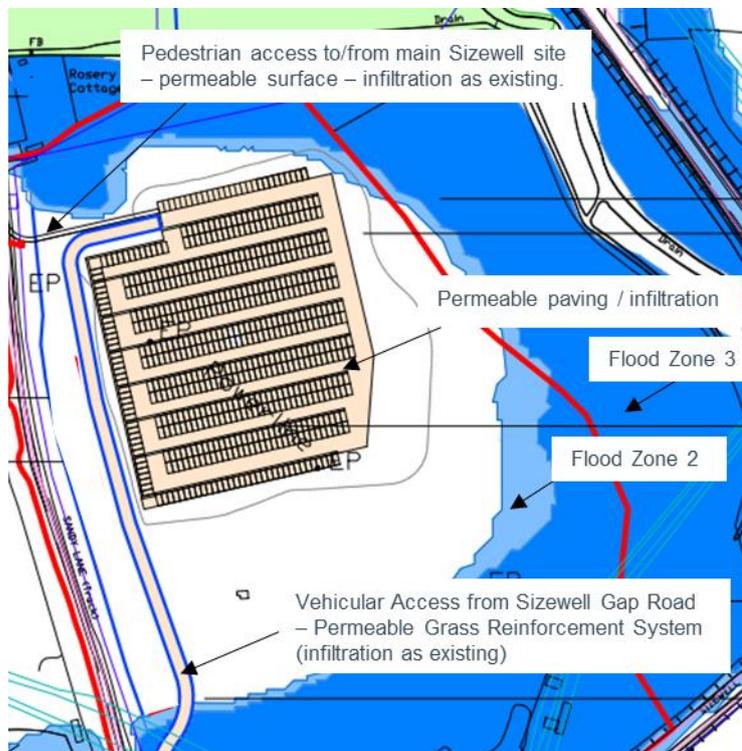


Figure 7-5: Pillbox Field Outage Car Park Surface Water Drainage Strategy Schematic

NOT PROTECTIVELY MARKED

i. Surface Water Drainage Hierarchy

Table 7-4: Pillbox Field Car Park Surface Water Drainage Hierarchy

Design Principle	Feasibility	Reason
1. Rainwater Harvesting	X	No permanent occupancy therefore deemed to be not viable.
2. Infiltration	✓	Permeable paving is proposed to enable surface water to infiltrate directly into the ground, or via a below ground soakaway. The run-off from the car park surface could be conveyed via channel drainage and below ground pipework to a soakaway located below the proposed car park. The predicted soakaway storage volume is approximately 1215m ³ , based on the assumed infiltration rate (Section 4.2). Oil / hydrocarbon / silt interception systems (I.e. permeable paving or formal oil separator) will be required.
3. Attenuation (ponds, swales)	X (see detail)	Swales etc. could be incorporated along the boundary of the car park to provide support drainage for overflows. These can be used to collect, convey, infiltrate or attenuate run-off.
4. Attenuation (tanks)	X (see detail)	A below ground attenuation tank with a volume of approximately 1750m ³ would be required to attenuate run-off and discharge into the nearest drainage network at 1 l/s. Due to the complexities of connecting an outflow into an existing SW network (there are no nearby SW networks) this option will not be proposed at this stage.
5. Discharge – watercourse	X	A SSSI runs close to the northern and eastern site boundary, therefore discharge into any watercourses is deemed un-desirable, due to strict restrictions on the water quality of the run-off discharging into it. If soakaways are deemed unviable following detailed calculations, the surface water may be indirectly discharged into the surrounding watercourses following appropriate measures to account for the volume of surface water and the presence of hydrocarbons. This is not a desired solution.
6. Discharge – SW drain	X	Due to the complexities of connecting an outflow into an existing SW network (there are no nearby SW networks) this option will not be proposed at this stage.
7. Discharge – Combined drain	X	Discounted - there are no known combined drains in the vicinity.

ii. Surface Water Drainage Design

- 7.3.4 The Outage Car Park proposed to be located within Pillbox Field involves the development of an at-grade car park with an associated access road.
- 7.3.5 Due to the remoteness of the location, the surface water drainage is proposed to be managed on-site without connecting to existing drainage networks or watercourses.

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- 7.3.6 Greenfield run-off characteristics will be replicated.
- 7.3.7 Permeable surfacing, is proposed, enabling the surface water to directly infiltrate into the underlying ground, whilst providing suitable treatment of any incidental oil spills when in use as an Outage Car Park.
- 7.3.8 The pedestrian access path and the majority of the vehicular access road serving Outage Car Park, is proposed to comprise a permeable surface, employing infiltration techniques to drain the surface water drainage and mimicking pre-development drainage characteristics.
- 7.3.9 The existing junction at Sandy Lane / Sizewell Gap will be re-surfaced using traditional asphaltic surfacing. The proposed topography will direct surface water runoff away from the main highway and into local infiltration ditches, thus maintaining pre-development drainage characteristics.
- 7.3.10 The interception storage required to capture the first 5mm of every storm is approximately 70 m³. This can be adequately intercepted and captured within the permeable paving.
- 7.3.11 It is recommended that additional trial pit and infiltration testing is carried out at the sites where infiltration structures will be sited. This is something that should be carried out before detailed design of drainage commences.

iii. Assumptions

- It is assumed that sufficient inspection and maintenance will be undertaken during the life of the car park facility to ensure the condition of the permeable pavements and/or other drainage or SuDS features remain at an adequate level. An allowance for maintenance and minor refurbishment should be programmed within the detailed design stage.

iv. Constraints

- There is a SSSI to the north and west of the proposed Outage Car Park, and the proposed pedestrian footpath's alignment takes it into the SSSI near Rosery Cottages. Direct and uncontrollable discharge of surface water from the Outage Car Park into the SSSI and nearby watercourses prior to adequate water quality controls must be avoided.
- If surface water is proposed to infiltrate adjacent to existing watercourses, it will be ensured that the discharging surface water quality will be at least to the same levels as the existing receiving infiltrating water by incorporating suitable water quality control measures, such as swales, permeable paving, filter drains etc.

8. DECOMMISSIONING OF PUMPING STATION

- 8.1.1 As part of the wider masterplan for the Sizewell site, a number of existing facilities, located to the north of the red boundary line shown in **Figure 8-1** will eventually be replaced by Sizewell C Power Station facilities. This will include the decommissioning of the existing pumping station which forms part of the northern branch of the existing surface water drainage network, resulting in a discontinuity in the surface water drainage network.
- 8.1.2 Areas shown in green on **Figure 8-1** would be unaffected by the removal of the pumping station, as they currently drain by infiltration and do not contribute to the pump station flow. During an exceedance event, the run-off from these areas will flow away from the main site areas and towards the drainage ditches to the west of the main site boundary. No change is therefore proposed in respect of the green areas.
- 8.1.3 The areas shown in amber **Figure 8-1** currently drain by gravity to the pumping station, which then pumps flow towards the outfall. Flows from these areas must be addressed prior to decommissioning the pumping station.
- 8.1.4 As part of the Sizewell C Power Station development, Areas 4, 5, 6 and 7, as shown in **Figure 8-1**, are expected to be developed from their current state, or returned to soft landscaping. These areas are therefore excluded from long-term consideration in the pumping station decommissioning. Until these areas are transformed to soft, permeable, surfaces, or altered within the Sizewell C development, they will continue to drain via the pumping station. Pumping facilities, using either the existing pumping station or a temporary replacement, will be required to cover the period until these areas are transformed.
- 8.1.5 The remaining areas 1, 2 and 3 will require alternative long-term drainage solutions.

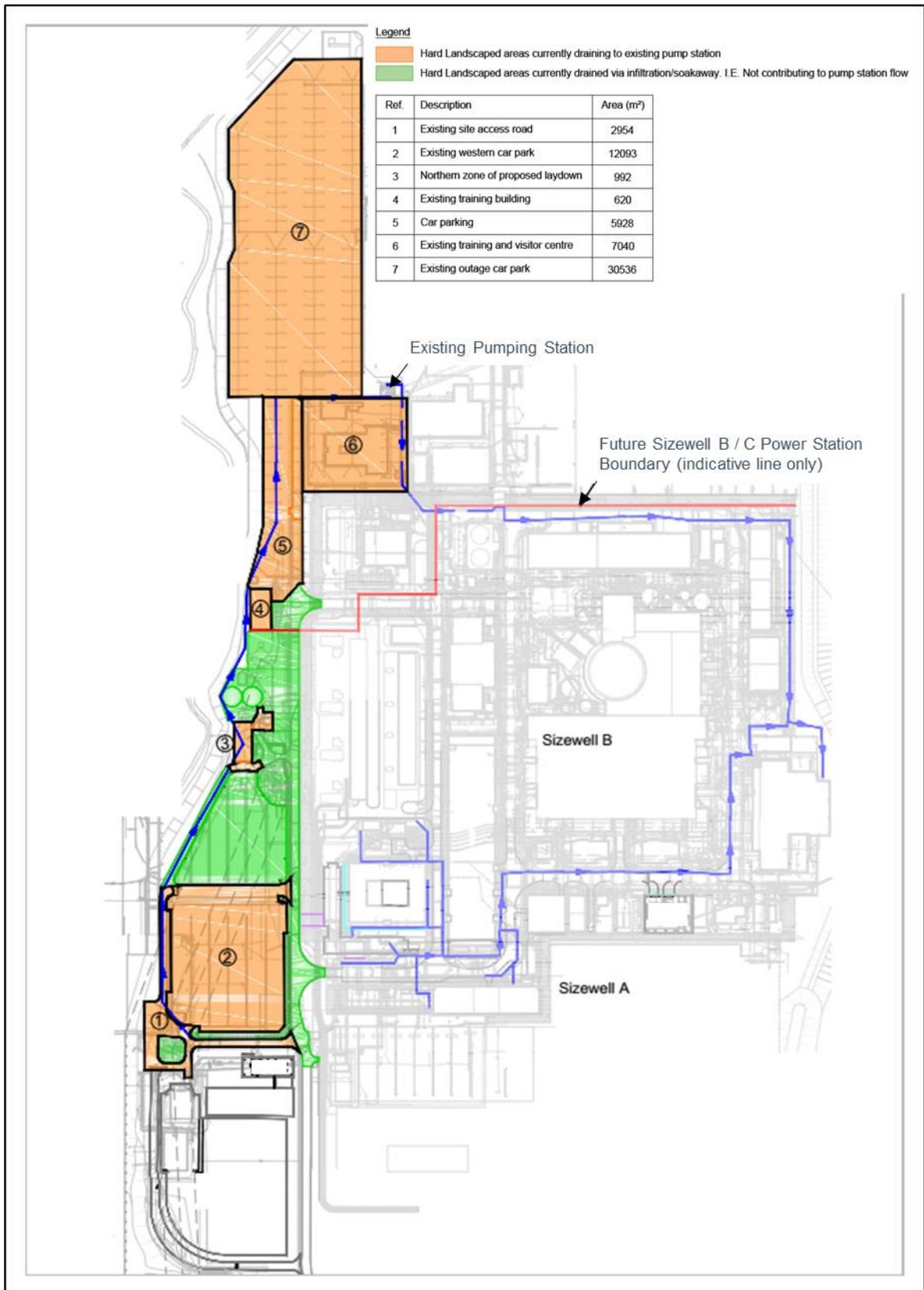


Figure 8-1: Existing Pumping Station (Affected Areas)

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a) Pumping Station Removal

8.1.6 This section considers options for the removal of the existing pumping station to the north of the Sizewell B Power Station site, considering the surface water drainage associated with areas 1, 2 and 3 highlighted in **Figure 8-1**. At this stage, no single option will be recommended. Further assessment should be made in the subsequent project phases and subject to detailed design.

i. Retaining pumped solutions

8.1.7 One option could be relocating or constructing a new pumping station within the existing site boundary and maintaining the existing method/philosophy of draining this part of site. This would maintain the process of pumping of surface water, imposing continuing energy and maintenance costs. It would however also result in the continued pumping of off-site water across the Station site, introducing off-site hazards onto the Station area.

8.1.8 This is also reiterated by the complexities surrounding the relocation of the pumping station or construction of a new one, as it would need to be coordinated with the existing infrastructure and not impede current or future site operations, alongside not interrupting any future development plans.

ii. Gravity drainage to outfall

8.1.9 Topography does not permit gravity drainage to the existing outfall. If feasible hydraulically, such a solution would also retain the issues associated with water being brought from outside the Station across the Station platform.

8.1.10 The creation of a new piped outfall to an alternative location is not considered feasible. The most hydraulically suitable discharge point would be into the adjacent SSSI, which is not considered ideal. It is however an option that should be included for further development.

iii. Infiltration

8.1.11 The drainage of areas 1, 2 and 3 may be achieved using through infiltration, either through discrete soakaways or using a permeable pavement solution.

8.1.12 A large underground cellular soakaway installed beneath the surface of the existing western car park has been considered as a feasible solution, although not ideal. Such an installation would require the demolition of current underground infrastructure such as concrete foundations present beneath the existing car park, as well as potential conflicts with underground utilities and with the Dry Store located in the south-eastern portion of the car park and its associated heavy load route.

8.1.13 Another option is for the asphaltic surfacing of the existing western car park (Area 2) be re-constructed as a permeable surface, such as permeable concrete block paving or porous asphalt. This would provide direct infiltration for rainwater falling on Area 2.

8.1.14 Area 1 would be drained into the sub-base of the new permeable pavement of Area 2. This would be achieved by diverting the existing carrier drain which conveys the surface water associated with Area 1 to deliver flows to the sub-base of permeable

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paving in Area 2, and connecting to a network of perforated pipes within the sub-base of Area 2 that would distribute the run-off into the permeable paving sub-base. This would not require modification of the surfacing or drainage collection within Area 1.

- 8.1.15 Surface water run-off from Area 3 might also be discharged into the sub-base of Area 2 in the same manner. However, due to the falls and distance along which the carrier drain need to be re-laid, it would enter Area 2 at a low level and require significant volumes of additional sub-base beneath Area 2 to provide effective drainage. It is therefore recommended that Area 3 is resurfaced with permeable paving, and drained by direct infiltration within its own footprint. This solution is illustrated in **Figure 8-2**.
- 8.1.16 It is recommended that additional trial pit and infiltration testing is carried out at the sites where infiltration structures will be sited. This is something that should be carried out before detailed design of drainage commences.

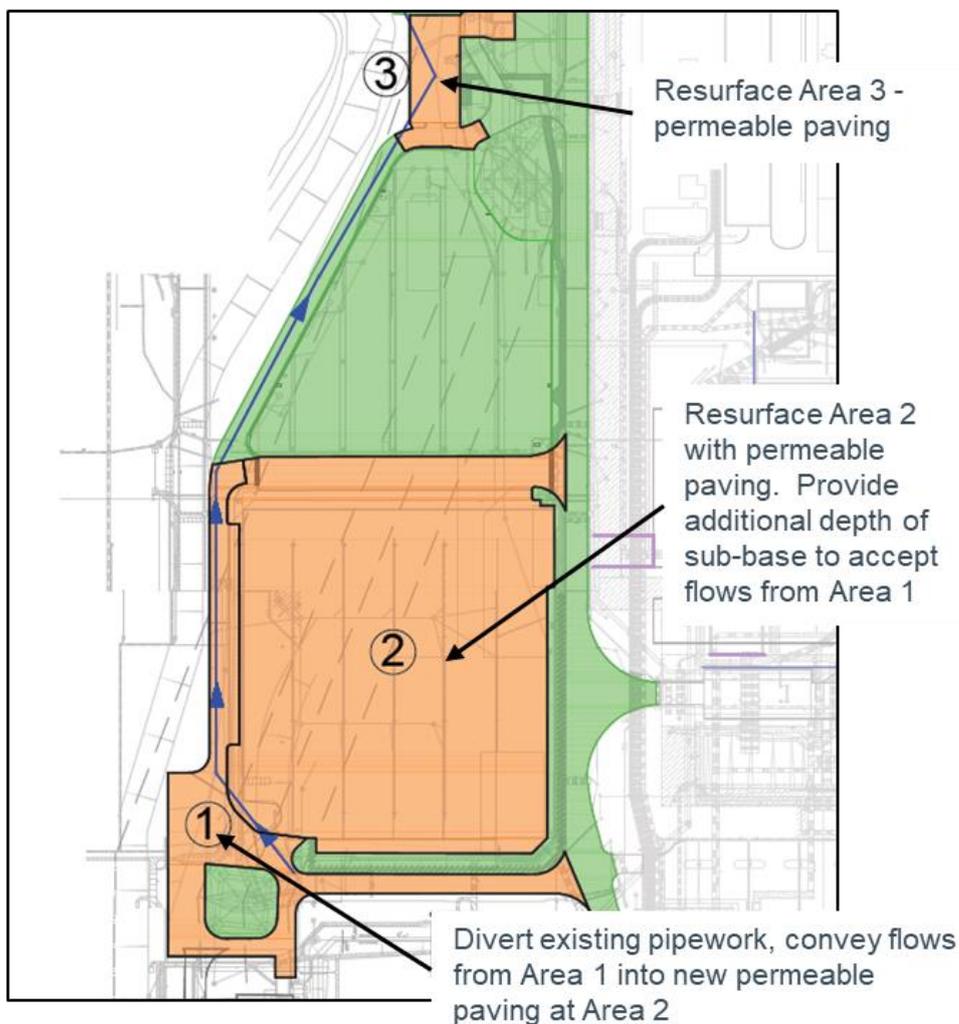


Figure 8-2: Infiltration Options for Areas 1, 2, 3

- 8.1.17 Preliminary sizing of required permeable surfacing required to infiltrate Areas 1 and 2 indicates a proposed pavement construction as follows (assuming a level surface):

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Table 8-1: Proposed Pavement Construction for Areas 1, 2, 3

Layers	Permeable Block Paving	Porous Asphalt
Surfacing	80mm concrete pavers	180mm or (80mm with HBCGA below) Porous Asphalt
	50mm laying course	(125mm Hydraulically Bound Coarse Graded Aggregate)
Pollutant control	Upper geotextile	
Sub-base	200mm hydraulically bound course graded aggregate + 250mm coarse graded aggregate	
Pollutant control	Lower geotextile	

8.1.18 Note, if the surface gradient were 1:60, the sub-base layer would increase to approximately 700mm to ensure adequate storage is provided. It is recommended that concrete baffles are installed, as demonstrated in **Figure 8-3**, in order to provide sufficient storage without greatly increasing the sub-base depth, as this may be constrained by the water table.

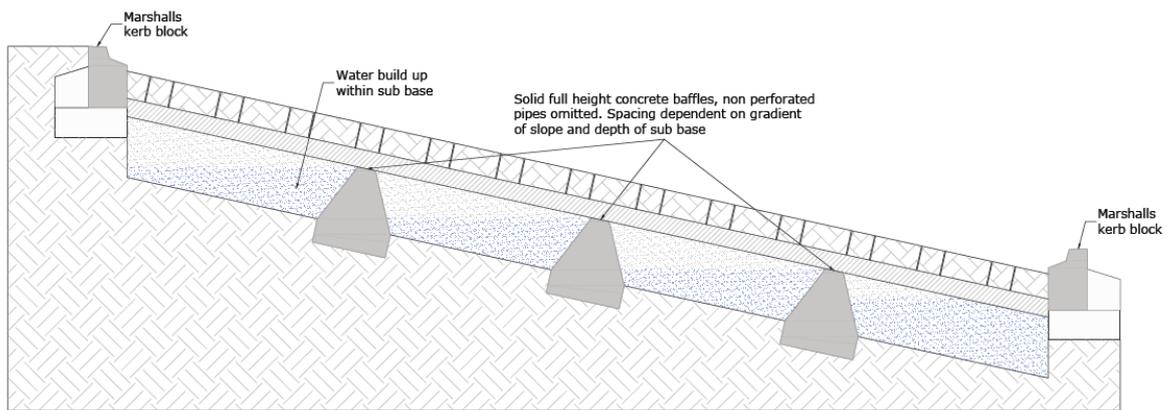


Figure 8-3: Permeable Paving Concrete Baffles [Marshalls- Permeable Paving Design Guide]

8.1.19 A permeable paving solution may accept run-off from adjacent impermeable areas, subject to a limitation that the impermeable area drained does not exceed twice the permeable area. Therefore it is recommended that the car park is resurfaced so that the car park spaces comprise permeable paving, whilst the aisles between the spaces may be formed using permeable or impermeable surfacing, such as asphalt without adversely affecting the drainage solution.

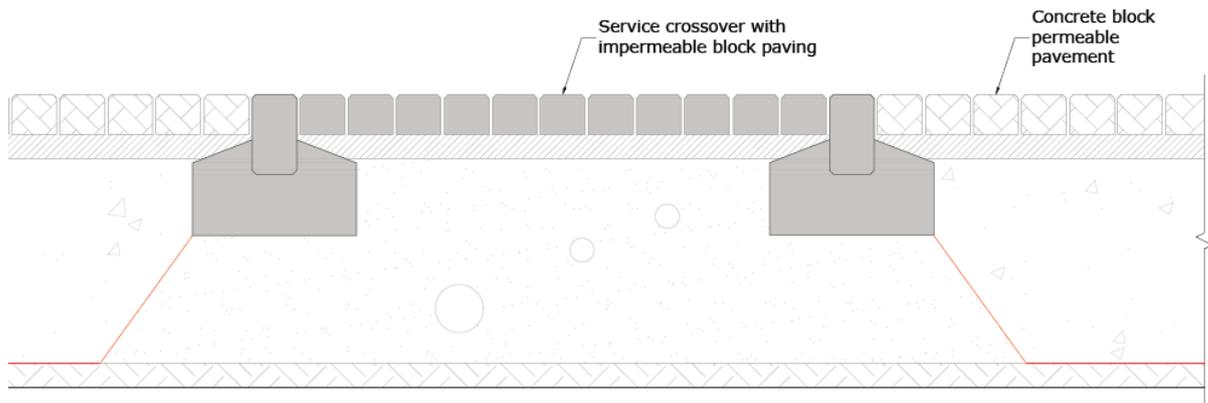


Figure 8-4: Impermeable and Permeable Paving

- 8.1.20 A permeable sub-base replacement system comprising lattice plastic, cellular units could be incorporated beneath the permeable pavement structure to provide additional storage as indicated in **Figure 8-5**, as they possess a greater water storage capacity than conventional granular systems (30-40% of the depth).
- 8.1.21 In accordance with the SuDS manual, the permeable pavement structure provides sufficient hydrocarbon treatment through the adoption of the following processes within the pervious pavement:
- Biodegradation of organic pollutants within the pavement construction
 - Adsorption of pollutants to the surfaces of the sub-base material. Dependent upon factors such as aggregate structure, texture and moisture content.
 - Retention and settlement of solids.

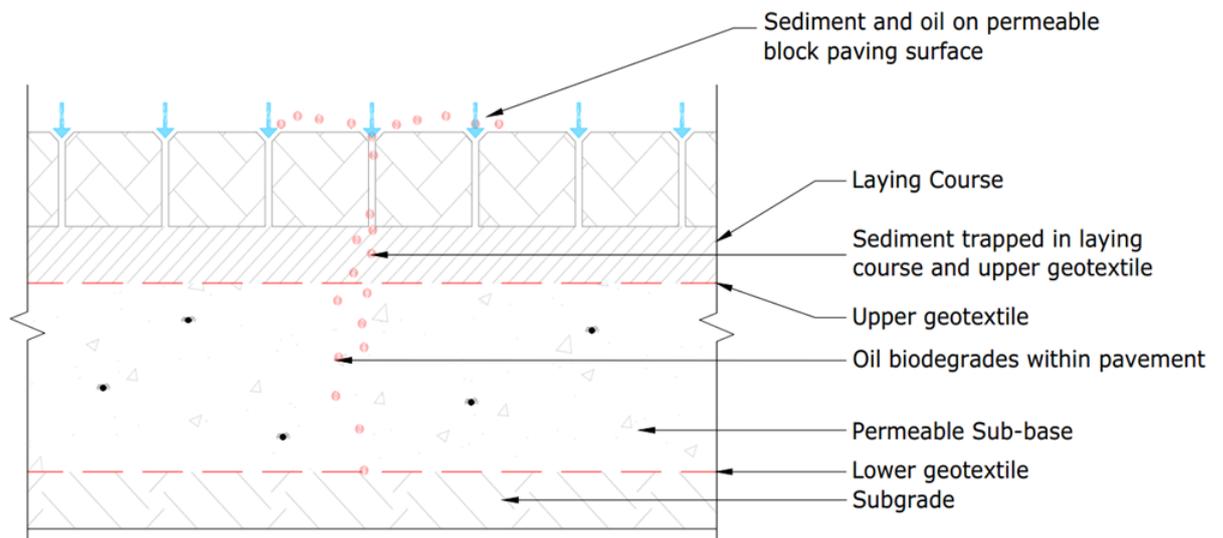


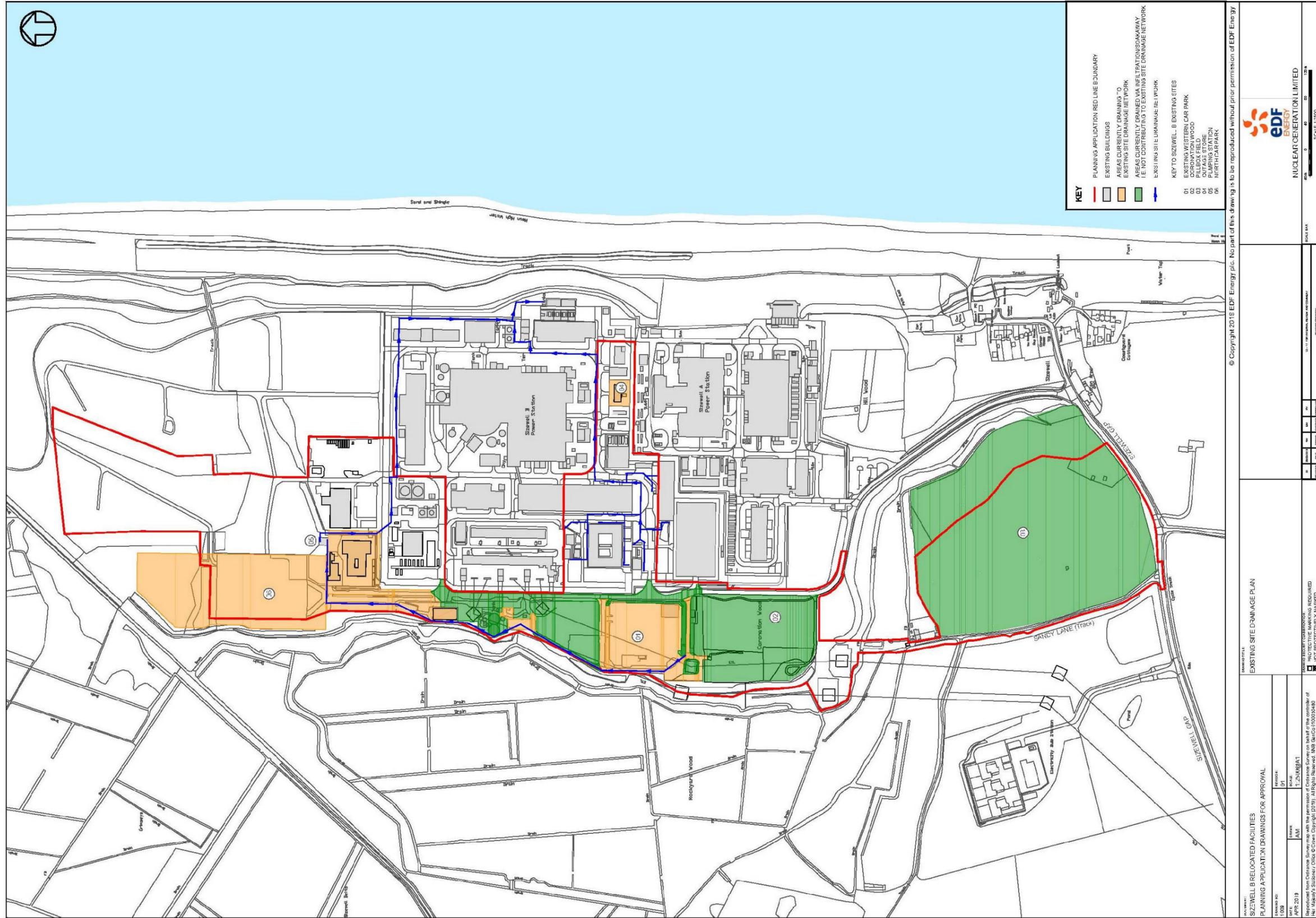
Figure 8-5: Permeable Sub-base Replacement System located beneath permeable paving structure [Interpave – Permeable Pavements]

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APPENDIX 1A SURFACE WATER DRAINAGE PLANS

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Existing Site Drainage Plan



NUCLEAR GENERATION LIMITED	
SCALE 1:2500	
DRAWING TITLE: EXISTING SITE DRAINAGE PLAN	
PROJECT: SIZEWELL B RELOCATED FACILITIES	
DRAWING NO: 1.000	
DATE: APRIL 2019	
DRAWN BY: AMF	
CHECKED BY: T.25118/GJAT	
REVISION: 01	
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VOLUME II:
TECHNICAL APPENDICES

3.3 Outline Construction Environmental Management Plan

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CONTENTS

1.	INTRODUCTION	1
1.1	Overview	1
1.2	Project Summary	1
1.3	Purpose	2
1.4	Scope	3
1.5	Structure of Outline CEMP	3
2.	CONSTRUCTION METHODOLOGY	4
2.1	Overview of the Proposed Development	4
2.2	Construction Programme.....	5
2.3	Alternative End-State Scenario	6
3.	GENERAL ENVIRONMENTAL MANAGEMENT FRAMEWORK	7
3.1	Environmental Management System.....	7
3.2	Environmental Policy and Procedures.....	7
3.3	Roles and Responsibilities	8
3.4	Construction Planning	9
3.5	Communication.....	11
3.6	Documented Information	12
3.7	Performance Evaluation	13
3.8	Considerate Constructors Scheme.....	14
4.	GENERAL SITE REQUIREMENTS.....	15
4.1	Site Security and Safety	15
4.2	Workers and Visitors to Site	15
4.3	Lighting.....	15
4.4	Working Hours.....	16
4.5	Good Housekeeping.....	17
4.6	Pollution Incidents and Emergency Procedures	17
5.	ENVIRONMENTAL MITIGATION AND MONITORING	19
5.1	Overview	19
5.2	Construction Traffic Management.....	20
5.3	Dust and Air Quality.....	22
5.4	Ecology and Biodiversity	25
5.5	Landscape and Visual	29
5.6	Historic Environment	30
5.7	Amenity and Recreation	30
5.8	Noise and Vibration	30
5.9	Land Quality	32
5.10	Water Quality and Hydrogeology.....	34
5.11	Flood Risk	37
5.12	Radiological Effects	38
5.13	Materials.....	39
6.	SITE WASTE MANAGEMENT	40

6.1	Waste Management	40
7.	FIGURES	41
8.	LIST OF ABBREVIATIONS	42

TABLES

Table 1: Indicative Construction Programme	5
Table 2: Summary of Roles and Responsibilities	8

PLATES

N/A

FIGURES

Figure 1 : Site Location

Figure 2 : Site Layout

Figure 3 : Environmental Constraints

Figure 4 : Construction Traffic Route

APPENDICES

Annex A Indicative Construction Programme

Annex B Construction Waste Management Strategy

1. INTRODUCTION

1.1 Overview

- 1.1.1 EDF Energy Nuclear Generation Limited, herein referred to as 'EDF Energy (NGL)', is seeking planning permission from East Suffolk Council for the demolition and relocation of a number of existing facilities at Sizewell B nuclear power station (known as the Sizewell B Relocated Facilities Project and herein referred to as the 'Proposed Development'). The facilities that would be relocated, demolished or replaced are ancillary to the process of electricity generation and have a broad range of functions.
- 1.1.2 On the 1st April 2019, ESC was created, covering the former districts of Suffolk Coastal District Council (SCDC) and Waveney District Council (WDC). As such, all the pre application consultation and engagement which has taken place to date with the local planning authority has been carried out with SCDC and therefore is referred to as such within the documentation submitted with the planning application for the Proposed Development.
- 1.1.3 This Outline Construction Environmental Management Plan (Outline CEMP) has been prepared by EDF Energy (NGL) for submission with the planning application for the Proposed Development.
- 1.1.4 This Outline CEMP details the processes and procedures to be adopted during the construction and demolition phase of the Proposed Development in order to manage the associated potential environmental risks.
- 1.1.5 It is expected that, prior to the commencement of construction and demolition works, a detailed CEMP will be prepared and managed by EDF Energy (NGL). The detailed CEMP will be a live document implemented by EDF Energy (NGL) and its contractors, and reviewed and updated as necessary during construction. EDF Energy (NGL) will engage with ESC and other stakeholders as required to ensure that sufficient detail is included within the document.

1.2 Project Summary

- 1.2.1 Sizewell B power station is situated on the Suffolk coast, north-east of Ipswich and south of Lowestoft. The station is expected to operate until 2035, with the potential for a lifetime extension for 20 years to 2055.
- 1.2.2 The Proposed Development comprises the relocation and consolidation of a number of facilities associated with the Sizewell B power station. The Proposed Development will relocate facilities from an area of land nominated for the Sizewell C development to areas within and outside the existing Sizewell B site perimeter.
- 1.2.3 The facilities to be relocated have a broad range of functions including industrial, workplace, education, cultural and infrastructure. The Proposed Development provides the opportunity for these facilities to be upgraded to comply with current standards and regulations.

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- 1.2.4 The premise for the relocated facilities is that the new facilities would replicate existing buildings on a like-for-like basis, in terms of use. However, in a number of cases there is a requirement to increase the building area of the new facilities in order to meet current regulations and industry standards. Following the relocation of the facilities, the existing facilities will be demolished. The areas from which the facilities would be removed, together with the land that would be used to construct the new facilities, is herein referred to as the 'Site' (refer to **Figure 1** for Site location).

1.3 Purpose

- 1.3.1 This Outline CEMP describes how construction activities will be undertaken and managed in accordance with commitments and requirements identified to:

- ensure compliance with all applicable UK environmental legislation and statutory controls, as well as construction health, safety and environmental standards;
- ensure good construction practices are employed throughout the construction phase of the Proposed Development;
- provide assurance to third parties that their requirements with respect to environmental performance will be met;
- provide a mechanism for ensuring that measures to mitigate potentially adverse environmental impacts are implemented;
- provide a framework for mitigating impacts that may be unforeseen or unidentified until construction is underway; and
- provide a framework for compliance auditing and inspection to enable EDF Energy (NGL) to be assured that their aims with respect to environmental performance are being met.

- 1.3.2 The requirements presented in this Outline CEMP will be adhered to and communicated to the project team and its contractors.

- 1.3.3 This Outline CEMP should be read in conjunction with the below documents submitted with the planning application:

- relevant chapters and appendices of the **Environmental Statement (ES)**:
 - ES Volume I, Chapter 3: Proposed Development;
 - ES Volume I, Chapter 6: Terrestrial Ecology and Ornithology;
 - ES Volume I, Chapter 7: Landscape and Visual;
 - ES Volume I, Chapter 8: Historic Environment;
 - ES Volume I, Chapter 9: Amenity and Recreation;
 - ES Volume I, Chapter 10: Transport;
 - ES Volume I, Chapter 11: Noise and Vibration;
 - ES Volume I, Chapter 12: Land Quality;
 - ES Volume I, Chapter 13: Hydrogeology;
 - ES Volume I, Chapter 14: Surface Water and Flood Risk; and
 - ES Volume I, Chapter 15: Radiological Effects.

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- ES Volume II, Appendix 14.1 Flood Risk Assessment;
- ES Volume II, Appendix 14.2 Water Framework Directive Compliance Assessment;
- **Shadow Habitat Regulations Assessment Screening Report**; and
- **Arboricultural Impact Assessment** and **Arboricultural Method Statement**.

1.4 Scope

1.4.1 This Outline CEMP has been designed with the objective of compliance with the relevant environmental legislation and recommended mitigation measures for the works associated with the Proposed Development. In particular, it outlines the potential impact / environmental aspect, mitigation / control measures that need to be implemented, monitoring requirements (frequency, duration) and responsibility for implementation.

1.4.2 The key aims of this Outline CEMP are to:

- provide a brief overview of the Proposed Development, associated programme and construction and demolition sequence;
- provide a description of the environmental management measures, controls and other mitigation measures to be employed at the Site; and
- discuss links to other complementary plans and procedures.

1.5 Structure of Outline CEMP

1.5.1 This document is set out in sections relating to the topics assessed in the ES accompanying the planning application.

1.5.2 The structure of the Outline CEMP is as follows:

- Introduction;
- Construction Methodology;
- General Environmental Management Framework;
- General Site Requirements;
- Environmental Mitigation and Measures; and
- Outline Construction Waste Management Strategy.

2. CONSTRUCTION METHODOLOGY

2.1 Overview of the Proposed Development

2.1.1 This document should be read in conjunction with **Chapter 3: Proposed Development** of the ES to be submitted in support of the planning application which outlines the construction and demolition methodology.

2.1.2 The Proposed Development comprises the relocation and consolidation of 19 of the existing Sizewell B power station facilities, several of which would need to be relocated as a direct consequence of the proposed Sizewell C power station, and others impacted as a result of the relocation of the facilities. This includes a number of supporting facilities, comprising laydown areas, and operational and outage car parking. A site layout is shown in **Figure 2**.

2.1.3 Construction of the Proposed Development will take place over two main phases as described below. At peak, the construction and demolition phase of the Proposed Development would require a workforce of 78 workers in Phase One and 70 workers in Phase Two. It is anticipated that the Proposed Development is estimated to generate during the peak construction period a total of 70 HGV trips (140 movements) per day. For the purposes of the ES, the peak year of construction was estimated to be in 2022.

a) Phase One

2.1.4 This includes:

- Coronation Wood clearance;
- Coronation Wood Development Area construction, including the construction of the Western Access Road, Training Centre, Laydown Area and Replacement Car Park;
- Outage Store construction;
- temporary relocation of the Visitor Centre within the existing Technical Training Centre;
- construction of Outage Car Park and associated access within Pillbox Field; and
- demolition of the existing Visitor Centre, Operations Training Centre, Outage Store and Civils Workshop and Store.

b) Phase Two

2.1.5 Phase Two works:

- construction of facilities in Outline Development Zone (offices, canteen and welfare facilities);
- construction of a new Visitor Centre; and
- remaining demolition works.

2.2 Construction Programme

2.2.1 It is anticipated that there would be phased construction of the facilities followed by demolition of the existing facilities over an approximate 53 month period.

2.2.2 It is anticipated that construction would commence as soon as possible following the receipt of planning permission and the discharge of any relevant pre-commencement conditions, and will follow an agreed programme of works summarised in Table 1. Please see **Annex A** for further detail on the indicative construction programme.

Table 1: Indicative Construction Programme

Phase		Start Date	Approximate Duration (Months)
Phase One	Clearance Coronation Wood Development Area	Month 1	3
	Coronation Wood Development Area Construction	Month 4	17
	Outage Store	Month 3	16
	Temporary Visitors Centre	Month 22	3
	Outage Parking and Access	Month 10	9
	Demolition Part 1	Month 25	5
Phase Two	Temporary Security Modifications	Month 30	8
	Outline Development Zone	Month 37	17
	Visitors Centre	Month 38	13
	Demolition Part 2	Month 49	5

2.2.3 Influences on the programme/ sequencing include the following:

- Outages which occur approximately every 18 months;
- Clearance of vegetation constrained by ecology seasons;
- Construction of the Western Access Road has been prioritised within the construction phasing, so that construction traffic to the Coronation Wood Development Area could be segregated from the Sizewell B operational workforce traffic at the earliest opportunity;
- Construction of the proposed Outage Car Park would be phased, so that access to Rosery Cottages and Bridleway 19 would not be impeded; and
- Commissioning of new onsite facilities – demolition of old/existing facilities is not to be undertaken until after an outage so that the new facilities can be proven during an outage.

2.3 Alternative End-State Scenario

- 2.3.1 The Proposed Development has been designed to accommodate two potential end-state scenarios, with the 'base scenario' assuming that the Sizewell C Project application is consented and implemented and 'alternative end state' assuming that the Sizewell C Project is not consented.
- 2.3.2 In the 'base scenario', the Proposed Development would be completely built out and the area of land that is nominated for Sizewell C, to the north of the Sizewell B site, would be left ready for future development.
- 2.3.3 In the 'alternative end state', the Phase Two works (as described above) would not be progressed. The majority of the Phase One construction and development work would be built out, with the exception of the replacement of the existing Outage Car Park to the north of Sizewell B power station with the Outage Car Park at Pillbox Field. The area to the north of the Sizewell B site would be restored and landscaped in accordance with the Landscape Restoration Plan (see **Figure 3.9** in **ES Volume I, Chapter 3**).

3. GENERAL ENVIRONMENTAL MANAGEMENT FRAMEWORK

3.1 Environmental Management System

3.1.1 EDF Energy (NGL)'s contractors will be required to comply with EDF Energy (NGL)'s Environmental Management System (EMS) which is certified to ISO 14001:2015 environmental management standard. The detailed CEMP will summarise the EMS framework and include the environmental policy, management, monitoring and auditing procedures to ensure that all environmental requirements to be implemented in order to achieve full compliance with environmental legislation and the environmental management provisions of the ES and other planning documents are met, as set out within this Outline CEMP.

3.2 Environmental Policy and Procedures

3.2.1 EDF Energy's Environmental Policy sets out the approach to minimising and managing environmental impacts using best available techniques and is available online at www.edfenergy.com¹.

3.2.2 Furthermore, EDF Energy (NGL)'s EMS includes the following relevant procedures, which Contractors will be required to comply with:

- Environmental Management and Compliance (BEG/ICP/SHE/017);
- Management and Disposal of Conventional Waste (BEG/SPEC/SHE/ENVI/005);
- Management of Lower Activity Radioactive Waste (BEG/SPEC/SHE/ENVI/009);
- The Application of Best Available Techniques and Best Practical Means (BEG/SPEC/SHE/ENVI/021); and
- Biodiversity Management (BEG/SPEC/SHE/ENVI/039).

3.2.3 The Contractors will also comply with:

- any environmental requirements specified in the contract documents including the works information; and
- any specific requirements arising from the assessment.

3.2.4 Advice on any environmental issues can be obtained from the Station Environmental Coordinator or the Company's Environmental Safety Engineer via the Contract Manager.

¹ Refer to https://www.edfenergy.com/sites/default/files/environment_policy.pdf and <https://www.edfenergy.com/about/sustainability-the-better-plan/ambitions/environment> [Accessed 13 February 2019].

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3.3 Roles and Responsibilities

3.3.1 The roles and responsibilities of EDF Energy (NGL) and its Contractors are summarised in

3.3.2 **Table 2.**

Table 2: Summary of Roles and Responsibilities

Role	Responsibility
EDF Energy (NGL) (Client and Principal Contractor)	<p>Responsibility for the day to day management of the demolition and construction activities on site, ensuring the activities adhere to the actions set out in the CEMP, including:</p> <ul style="list-style-type: none">• delivering a system of work such that the construction activities are carried out in compliance with the CEMP;• co-ordinating communication with key stakeholders and other third parties, as required;• checking the qualifications and competence of contractors for appointment;• providing oversight of the demolition / construction activities to ensure these are undertaken in accordance with contractual requirements.• defining construction environmental performance targets;• monitoring the performance of contractors and providing direction as necessary;• establishing a construction environmental monitoring and auditing programme;• applying for any relevant construction consents, permits and licenses, unless delegated to the relevant contractor; and• delivering environmental awareness training for all workers, including a site induction for all site workers / contractors.

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Role	Responsibility
Contractors	<ul style="list-style-type: none">• Update and implement the CEMP;• agree and set construction environmental targets with the EDF Energy (NGL) as part of their CEMP;• ensure that the construction environmental targets/ objectives of the CEMP are being achieved and that these are not contrary to any relevant legal requirements;• monitor construction environmental performance on a monthly basis and identifying and implementing any corrective actions and opportunities for continuous improvement to meet construction environmental targets;• undertake construction environmental monitoring, as required;• implement and maintain environmental controls on site;• ensure that all environmental incidents, near misses and observations are reported and actioned, as appropriate;• maintain waste register for construction waste and ensure correct waste management procedures are being implemented on site.• deliver environmental awareness training to support the implementation of the CEMP;• undertake an internal monthly audit of the CEMP and report findings – all audits will be followed up noting any completed actions, further work needed and actions that are not being complied with. Records will be kept in the CEMP file which will be available to view at the site compound; and• undertake corrective actions in the event of breaches of CEMP requirements.
Sub-contractors	<ul style="list-style-type: none">• Comply with the relevant requirements of the CEMP;• work to agreed plans, methods and procedures to minimise environmental impacts;• understand the importance of avoiding pollution on-site, including noise and dust, and how to respond in the event of an incident to avoid or limit environmental impact;• report all incidents immediately; and• monitor the workplace for potential environmental risks and escalate through the appropriate systems if any are observed.

3.4 Construction Planning

a) Environmental Risk Assessments

3.4.1 Prior to the commencement of each work package, contractors will identify environmental aspects of their work activities and the associated environmental impacts as part of the CEMP, by completing an environmental risk assessment (ERA). The ERA will identify the environmental risks associated with the specific construction activity or method and specify mitigation measures in line with the requirements of this Outline CEMP.

3.4.2 The control or mitigation measures identified as a result of the ERA will be included within the construction method statements and communicated to those involved in the execution of the construction activity. The effectiveness of the mitigation will be determined through monitoring.

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3.4.3 The risk assessments will be reviewed in the event of an environmental incident or should the scope of the works change. Copies of the ERAs will be retained on Site.

b) Method Statements

3.4.4 For each work package, the contractors must issue a method statement detailing:

- their work procedure;
- pollution prevention measures;
- how they will dispose of waste;
- any substances listed under Control Of Substances Hazardous to Health (COSHH) Regulations 2002 to be used; and
- environmental protection statements (including mitigation measures specified on the basis of the work package specific ERA) .

3.4.5 All method statements will be reviewed prior to acceptance for use and communicated to the Site personnel prior to the start of works.

c) Compliance Obligations

i. Environmental Statement and Other Planning Documents

3.4.6 An Environmental Impact Assessment (EIA) of the Proposed Development has been completed, the results of which are reported within the ES submitted with the planning application. The ES assumes that industry-standard construction environmental mitigation measures or measures required for compliance with existing environmental legislation will be implemented on Site. Furthermore, the ES identifies additional measures and monitoring requirements to avoid, reduce or mitigate environmental effects during construction and demolition works. Both assumed industry-standard mitigation required as part of legal compliance (referred to as 'tertiary mitigation' within the ES) and further measures identified as part of the ES (referred to as 'secondary mitigation') are summarised within **Sections 4 and 4.6** of this Outline CEMP.

3.4.7 In addition, other documents submitted with the planning application for the Proposed Development, such as the **Arboricultural Impact Assessment, Flood Risk Assessment, Habitats Regulations Assessment Screening Report** and **Water Framework Directive Compliance Assessment**, include construction environmental mitigation measures. These measures are summarised within **Sections 4 and 4.6** of this Outline CEMP and form part of environmental requirements that the contractor will be required to implement on Site.

ii. Relevant Standards, Codes, Protocols and Legislation

3.4.8 The relevant British Standards, codes, protocols and legislation which cover environmental and related matters have been referred to, where appropriate, within this Outline CEMP, in addition to the construction environmental management measures set out within the ES and other planning documents.

3.4.9 As part of the CEMP, an up to date schedule of legislation relevant to the environmental management of the demolition and construction works will be provided, including a list of construction consents, permits and licenses to be applied for prior to undertaking the works. The contractor will comply with the relevant requirements and update the

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CEMP to take into account any updates to these requirements applicable at the time of construction.

d) Construction Environmental Objectives

- 3.4.10 EDF Energy (NGL) will define construction environmental performance targets for the Proposed Development (including but not limited to energy use, carbon emissions, water use, waste, environmental incidents, complaints etc.) against which contractors will be monitored on a monthly basis to drive construction environmental best practice. The environmental performance monitoring will be used to define corrective actions and opportunities for continuous improvement, as relevant.

3.5 Communication

a) External

i. Public Liaison

- 3.5.1 EDF Energy (NGL) will take all reasonable steps to engage with stakeholders in the local community, focussing on those who may be affected by the construction works including residents, businesses, community resources and specific vulnerable groups.
- 3.5.2 EDF Energy (NGL) will ensure that local residents, businesses, occupiers, general users of the area, ESC and other relevant stakeholders are informed in advance of construction activities that may affect them. Notifications will detail the nature, estimated duration and working hours of the works. All notifications will include instructions for contacting EDF Energy (NGL), in case of any enquiries or complaints.

ii. Enquiries/ Complaints

- 3.5.3 EDF Energy (NGL) will establish a process for handling all enquires including complaints. This will include a dedicated phone line for the public to call if there are any issues.
- 3.5.4 All enquires will be recorded and a log will be maintained that will include details of the response and action taken. This will be available upon request for inspection by ESC. All enquires, whether a query or a complaint, will be dealt with in a timely manner.
- 3.5.5 Enquiries and complaints received are to be recorded into the register within 24 hours. The interested party will be notified what action is being taken to address the enquiry/complaint.

b) Internal

i. Training

- 3.5.6 EDF Energy (NGL) will ensure that training is provided to Site personnel throughout the construction period which will include:
- induction training, including an overview of Site specific environmental constraints requirements;
 - more detailed training for staff with specific environmental responsibilities, for example, waste management, recycling, spills etc; and

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- Tool Box Talks (TBTs), depending on the type of work being undertaken and the environmental impacts that may result from construction activities.
- 3.5.7 All contractors' Site personnel will be required to attend a Safety, Health, Environment and Security induction before being allowed to work onsite. This will ensure staff are appropriately briefed regarding project-specific environmental impacts and mitigation measures before they are allowed onto the Site.
- 3.5.8 Topics that the induction would cover include:
- the environmental objectives and policies of EDF;
 - guidance on the significance and sensitivity of environmental features near the Site;
 - the potential environmental effects of construction;
 - the identification and management of soil contamination;
 - responsibilities for environmental monitoring and reporting; and
 - procedures for responding to environmental incidents and emergencies.
- 3.5.9 EDF Energy (NGL) and the contractor will be responsible for ensuring that all Site personnel are aware of the environmental policy and construction environmental objectives, the significant environmental aspects and related potential environmental impacts associated with their work, their contribution to the implementation of the CEMP and the implications of not conforming with the CEMP requirements.
- 3.5.10 Furthermore, EDF Energy (NGL) and the contractor are responsible for ensuring that the Site personnel are competent to undertake the assigned work activities and determine training needs, where required.

3.6 Documented Information

- 3.6.1 The on-going management and completion of the CEMP actions need to be documented and kept on file for record management. The CEMP will be saved in an online management system and as a hard copy, if appropriate, which will be available for view at the Site compound.
- 3.6.2 The CEMP will be reviewed and updated by the contractor every 6 months and upon significant changes to the demolition and construction methods, whichever is sooner.
- 3.6.3 The CEMP File will include:
- copy of the latest version of the CEMP;
 - details of the appointed roles;
 - monitoring and auditing information;
 - complaints register; and
 - any other information relevant to demonstrating compliance with the requirements set out within the CEMP.
- 3.6.4 The CEMP File will be held and maintained electronically (and in hard copy, if appropriate), with the latest revisions identified with a document reference in compliance with the requirements of ISO 14001:2015.

3.7 Performance Evaluation

a) Monitoring

- 3.7.1 EDF Energy (NGL) will establish a construction environmental monitoring programme, on the basis of the requirements identified within the ES and as summarised within **Section 0** of this Outline CEMP.
- 3.7.2 The contractors will be required to undertake site inspections of their work sites at a frequency appropriate to the risk profile of the construction activities to determine whether the ongoing activities are in accordance with legislative and best practice requirements, and that agreed mitigation measures, as set out within the CEMP, are being implemented.
- 3.7.3 Furthermore, monthly monitoring against construction environmental performance targets will be undertaken.
- 3.7.4 A register of all environmental monitoring records will be maintained on Site and made available for inspection on request.

b) Auditing

- 3.7.5 EDF Energy (NGL) will establish an audit programme, including any internal and external audits of the implementation of the CEMP and any compliance obligations. Periodic auditing of the CEMP will ensure that the identified environmental risks are being safeguarded against and the commitments and requirements are being delivered.

c) Non-Compliances, Corrective Action and Opportunities for Improvement

- 3.7.6 In the event of non-compliances with the CEMP, EDF Energy (NGL) will implement corrective actions to remedy adverse effects and ensure construction activities are undertaken in accordance with legislative and best practice environmental actions and requirements, and agreed mitigation measures.
- 3.7.7 Any breaches of legislative requirements will be immediately acted upon to cease activity (if necessary) and reported to the relevant authorities within 24 hours.
- 3.7.8 Opportunities for continuous improvement will also be identified, where appropriate, to improve the effectiveness of the CEMP and to enhance the environmental performance.

3.8 Considerate Constructors Scheme

- 3.8.1 The project will be registered with the Considerate Constructors Scheme, which is a voluntary code of practice that seeks to:
- minimise any disturbance or negative impact (in terms of noise, dirt and inconvenience) sometimes caused by construction sites to the immediate neighbourhood;
 - eradicate offensive behaviour and language from construction sites; and
 - recognise and reward the constructor's commitment to raise standards of site management, safety and environmental awareness beyond statutory duties.

4. GENERAL SITE REQUIREMENTS

4.1 Site Security and Safety

- 4.1.1 For works within the security perimeter fence, the Sizewell B power station security arrangements will apply. For works outside the security perimeter fence, the construction area will be secured, typically using Heras type fencing.
- 4.1.2 In accordance with the Construction Design and Management (CDM) Regulations (Regulation 18), all working areas/sites will comply with either or both of the following:
- have its perimeter identified by suitable signs and be arranged so that its extent is readily identifiable; or
 - be fenced off.
- 4.1.3 A 400kV overhead power line (OHL) is in close proximity to the Coronation Wood Development Area. Therefore, control procedures will be developed for those cranes operating near the OHL, which could entail a combination of height/slew restrictors, no-go areas and/or safe height barriers.
- 4.1.4 The construction of the Outage Store will require works to be undertaken between Hydrogen Compound and Electrical Switch Room; therefore, precautions associated with Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) zones will be taken into account.

4.2 Workers and Visitors to Site

- 4.2.1 Throughout the construction and demolition works, Sizewell B power station will remain open for workers. Existing facilities will remain open until the construction of the proposed relocated facilities has been completed, with the exception for the existing Training Centre where the Visitors Centre will be temporarily relocated until Phase Two works are completed and there will be a short period where the Visitors Centre will be closed during the transition.
- 4.2.2 Measures to safeguard workers and visitors of Sizewell B power station and to segregate them from the construction works will be implemented. Separate pedestrian and vehicle/ plant accesses and routes will be established and maintained. Safe and unobstructed routes to operational buildings will be provided. Clear visitor routes will be defined through the use of appropriate signage.

4.3 Lighting

- 4.3.1 In determining construction lighting requirements, appropriate measures will be adopted by the contractors to minimise nuisance or harmful impacts arising from obtrusive light on sensitive receptors.
- 4.3.2 Control mechanisms include consideration of the type (specification) of lighting required to undertake tasks safely; the location and direction of lighting in relation to the nearest receptors; and the means of controlling light levels including minimising the effects of light glare, light intrusion and sky glow.

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4.3.3 The primary control measures are set out below:

- where appropriate, daylight only construction schedules will be adopted to minimise potentially adverse lighting impacts;
- LED and/or Sodium lamps will be preferentially used;
- minimum light levels for safe working will be provided and the minimum number of lighting elements will be used to illuminate the work area safely;
- flood lighting in areas adjacent to sensitive receptors will be avoided;
- lighting will be directed away from Site boundaries to ensure they do not cause a nuisance to the adjoining properties and ecological receptors and in particular the SSSI. If lights cannot be positioned in such way because of physical constraints or for safety reasons, then local screening of the lights, including shielding of luminaires, where appropriate, will be used to reduce disturbance;
- task specific lighting will be turned off on completion of the task, or at the end of the working day by the contractor;
- spotlights and task lighting towers will be positioned away from sensitive receptors, where identified; and
- contractors will consider the use of sensors or timing devices to switch off lighting where appropriate.

4.3.4 Short term lighting will be provided by battery powered units using diesel motored units as a secondary choice. For longer term applications, hard wired units will be considered.

4.4 Working Hours

4.4.1 Working hours for external activities (excluding emergency or maintenance works) are deemed to be:

- Monday – Saturday: 07:00 – 19:00 hours; and
- Sunday and Bank Holidays: No working.

4.4.2 HGV deliveries will be limited to the hours of:

- Monday - Friday: 08:00 - 18:00 hours;
- Saturday: 09:00 - 16:00 hours; and
- Sunday and Bank Holidays: No working.

4.4.3 Exceptions to the above are when construction activities are required to be continuous (for example continuous concrete pouring and steel frame and cladding erection). These will be notified to ESC in advance.

4.4.4 Works internal to buildings (e.g. during fit out of buildings) and within site cabins are deemed to not be restricted.

4.5 Good Housekeeping

4.5.1 EDF Energy (NGL) and its contractors will follow a 'good housekeeping' policy at all times. This will include, but not necessarily be limited to, the following requirements:

- general maintenance and cleanliness of the Site boundary, welfare facilities and storage areas;
- provision of adequate welfare facilities for Site personnel;
- appropriate waste management provision and regular collections;
- open fires will be prohibited at all times;
- effective infestation prevention of pests or vermin including arrangements for regular disposal of food or other material attractive to pests. If infestation occurs, EDF Energy (NGL) and its contractors will take appropriate action to eliminate and prevent further occurrence;
- maintenance of wheel washing facilities or other contaminant measures;
- provision of appropriate security and lighting;
- use of reversing alarms to give warning, whilst minimising noise impacts off-site;
- provision of a Site layout map, showing key areas such as material storage, spill kits, and waste storage
- maintenance of Public Rights of Way (PRoW), diversions and entry/ exit areas around the boundary of the Site for the safe passage of pedestrians and cyclists; and
- all loading and unloading of vehicles will take place off the public highway, wherever practicable.

4.5.2 The remainder of the Outline CEMP summarises Site specific environmental constraints, and the construction mitigation and management measures required to avoid, reduce or mitigate potential environmental effects, as identified within the ES. It also details environmental monitoring requirements.

4.6 Pollution Incidents and Emergency Procedures

4.6.1 The contractor will prepare a Pollution Prevention and Incident Response Plan (PPIRP) as part of the CEMP in compliance with existing EDF Energy (NGL) procedures and implement appropriate measures to control the risk of pollution due to construction activities, materials and extreme weather events. In the event of an incident, including an environmental incident, the PPIRP procedures must be followed.

4.6.2 The contractor will prepare and maintain a list of emergency contacts with contact details displayed prominently at each work site, including emergency phone numbers. In the event of an incident, EDF Energy (NGL) will notify ESC and other relevant stakeholders, such as the Environment Agency.

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- 4.6.3 All environmental incidents, near misses and observations will be logged within 24 hours of the occurrence. In the event of a serious incident, the relevant statutory environmental body will be notified within one hour.
- 4.6.4 Where an environmental incident or near miss has occurred, EDF Energy (NGL) will initiate a root cause review within 24-hours of the incident occurring. The review would include all relevant personnel where appropriate. Key lessons learned will be captured and used to inform and update the CEMP and associated documentation.

5. ENVIRONMENTAL MITIGATION AND MONITORING

5.1 Overview

5.1.1 The Site (defined by the Site boundary in **Figure 1**) is approximately 30.87 hectares (ha) in area. The Site is largely flat, with levels approximately 5 metres (m) and 10m above ordnance datum (AOD).

5.1.2 Key environmental constraints associated with the Site are listed below, with **Figure 3** illustrating the context of the Site and its immediate surroundings:

- Existing Sizewell A and Sizewell B power stations, including workers, visitors and facilities;
- Sizewell Marshes Site of Special Scientific Interest (SSSI) and protected species using the Site and its surroundings; as well as Minsmere to Walberswick Ramsar, Special Protection Area (SPA), SSSI and the Outer Thames Estuary and Sandlings SPAs;
- areas within Flood Zones 2 and 3;
- existing surface watercourses, including the Sizewell Drain;
- potential for known and unknown heritage assets;
- visual amenity and landscape character;
- natural beauty and special qualities of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) and Suffolk Heritage Coast;
- recreational users of public rights of way and long distance routes including bridleway route E 363/019/0 ('Bridleway 19'), and
- Rosery Cottages and other nearby properties.
- the hamlet of Sizewell, located approximately 200m to the south-east of the Site boundary.

5.1.3 Further information on the environmental constraints associated with the Site is provided within the ES. The subsequent sections summarise the construction environmental mitigation, management and monitoring measures included within the ES and other planning documents to avoid, reduce or mitigate significant adverse effects on sensitive receptors, including those listed above.

5.2 Construction Traffic Management

a) Construction Traffic

- 5.2.1 The Site access is from the A12, via the B1122, Lover's Lane and Sizewell Gap road, to a private road running northwards from a priority junction off Sizewell Gap road.
- 5.2.2 The established route to Site for Heavy Goods Vehicles (HGVs) is from the A12 taking the B1122 from Yoxford and then turning onto Lover's Lane, thus avoiding Leiston town centre. For traffic travelling southwards on the A12, this is the natural route to take. For traffic travelling northwards, the natural tendency (e.g. suggested by satellite navigation systems) is to come off at the Aldeburgh turning and then through Leiston town centre. A map will be provided to contractors which will include GPS co-ordinates for suppliers to be able to include as a 'via point' for their satellite navigation systems to ensure the designated route is clearly identified.
- 5.2.3 The construction traffic route is shown on **Figure 4**.
- 5.2.4 The Contractor will co-ordinate all deliveries and collections to/from the Site, and ensure that as far as possible:
- all delivery and collection vehicles associated with the Site are aware of the specified construction traffic route;
 - prior to a delivery or collection, if required, hauliers will notify the relevant authorities in accordance with the Road Vehicles (Authorisation of Special Types) (General) Order 2003; and
 - liaison will be undertaken with occupants of adjacent buildings to avoid delays to service deliveries due to construction vehicles.
- 5.2.5 Larger vehicle movements will be scheduled to avoid peak hours on the local road network, if at all possible. If an alternative construction traffic route is required for any reason, this will be agreed in advance with ESC.
- 5.2.6 A pre-booking system for deliveries will be implemented and managed so as to ensure minimal impact to the free flow of traffic on the public highway. All deliveries will be made to the designated areas within the Site. If for any reason it is necessary to load and unload outside the Site boundary, the details and procedure for this will be agreed in advance with ESC.
- 5.2.7 Consultation will be undertaken with the highway authority on any required road closures and diversions throughout the duration of works. It is anticipated that traffic flows associated with HGVs would generally take place out of peak hours when congestion on the local road network is lower.
- 5.2.8 As stated in **Section 3.5**, EDF Energy (NGL) will have a dedicated phone line for the public to call, if there are issues with construction traffic.

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b) Parking

- 5.2.9 An area will be allocated for contractors' construction vehicle parking within the Site boundary. Contractors' workforce vehicle parking can be within the same area if space permits, or will be provided within the existing Sizewell B power station's (North and West) car parks on a first come first basis (i.e. no reserved areas).
- 5.2.10 Contractors will be encouraged to incorporate parking for Site operatives within their work area. Shared transport will also be encouraged through the provision of a Workforce Travel Plan.

c) Construction Traffic Management Measures

- 5.2.11 The contractor will implement the following measures to mitigate the effects of construction traffic:
- Produce a Construction Traffic Management Plan (CTMP) and Construction Workforce Travel Plan (CWTP), setting out measures to reduce traffic impacts, manage the diversion and crossing of Bridleway 19 during construction, manage access via any construction traffic access points to the Site and measures to maintain road cleanliness.
 - The measures set out within the CTMP will include but not be limited to the following:
 - siting a traffic marshal where Bridleway 19 crosses the Pillbox Field access, to assist non-motorised users travelling between Sandy Lane and Sizewell Gap. This will enable pedestrians, cyclists and equestrians to safely cross the access road leading into Pillbox Field;
 - all HGV drivers working in the supply chain will be inducted in best safe driving practice prior to commencement;
 - HGVs delivering to the construction site will have their route adherence checked using GPS tracking;
 - a point of community contact will be established, enabling members of the public to report instances of unsafe driving. This will be checked against the database of HGVs delivering to the Site and, in the event of the vehicle being found to be associated with the project, appropriate action can be taken via the supply chain;
 - reasonable precautions to prevent or reduce any disturbance or inconvenience to the owners, tenants or occupiers of adjacent properties, and to the public generally will be implemented to ensure access is maintained at all times where reasonably practicable;
 - road safety measures for the public and construction staff will be provided for traffic management, including signage, lighting, safety barriers and traffic marshals, where appropriate;

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- procedures to address any highway incidents or vehicle breakdown of construction traffic especially at peak times will be developed and implemented;
- highway will be maintained and restored to its existing condition;
- public information notices will be supplied, erected and maintained for the requisite periods; and
- register for membership of the Fleet Operator Recognition Scheme (FORS).

d) Control of Mud Entering the Public Highway

5.2.12 Contractors will be required to take strict measures to minimise the spillage of mud arising from the construction and demolition works onto the roads adjacent to the Site. These will include, but not be restricted to:

- all vehicles exiting the Site will pass through a wheel wash facility and any vehicle carrying loose aggregate, cement or soil will be checked to ensure sheeting is in place;
- the provision of hard standing areas, where applicable, so that the delivery vehicles do not have to track on unmade ground, thus reducing the generation of mud; and
- for dirt or mud that has bypassed these systems a road sweeper will be used to ensure that the Site access road and local roads are kept clean.

5.2.13 Wheel wash facilities will be maintained for the duration of earthworks and excavation.

5.3 Dust and Air Quality

a) Environmental Controls

5.3.1 Construction activities have the potential to generate dust emissions, which can affect the surrounding areas, as well as ecological and hydrological receptors. Contractors will be required to manage dust, air pollution, odour and exhaust emissions during construction works in accordance with Best Practicable Means (BPM) to minimise adverse environmental impacts to air quality occurring across the Site and the surrounding area.

5.3.2 Site specific control measures will apply to all activities and operations throughout the construction and demolition phase of the Proposed Development and are listed below:

- machines with intermittent use will be shut down in the intervening period between work or throttled down to a minimum, subsequently reducing volumes of greenhouse and other gas emissions;
- Non Road Mobile Machinery (NRMM) (vehicles and plant) will be well maintained and a register of NRMM will be kept. Should any emissions of dark smoke occur (except during start up) then the relevant machinery will be stopped immediately and any problem rectified;
- engines and exhaust systems will be regularly serviced according to manufacturer's recommendation and maintained to meet statutory limits/opacity tests;

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- to minimise the likelihood of excessive road vehicle emissions, the following measures will be applied;
- setting up specific delivery dates and collection times, where feasible;
- consolidating deliveries..Plan Site layout so that machinery and dust causing activities are located away from receptors, as far practicable;
- fully enclose Site or specific operations where there is a high potential for dust production. Keep site fencing and barriers clean;
- ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation;
- the method of demolition will be chosen to reduce the likelihood of dust and equipment will generally be fitted with automatic water suppression, this will include soft-stripping the inside of buildings before any demolition;
- loads will be dampened down and sheeted, including the sides for all vehicles carrying spoil and other dusty materials to and from site prior to transport;
- control of cutting or grinding material on-site such that any dust emissions created by these processes is suppressed or minimised;
- restricting drop heights during lorry loading to the minimum required for safe and efficient operations, subsequently reducing dust emissions;
- dust suppression using damping will be carried out to avoid dust escaping beyond the Site boundary;
- ensure equipment is readily available on Site to clean any dry spillages, and clean up spillages as soon as reasonably practicable; and
- carry out regular site inspections to monitor compliance and record inspection results, and make available to ESC when asked.

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5.3.3 It is not anticipated that odour generation will be significant during the construction of the Proposed Development. However, contractors will adopt measures as appropriate to avoid the generation of odours. These measures will include, but not necessarily be limited to:

- covering containers holding waste and regularly removing waste containers from Site;
- careful programming to minimise the duration of work with potential to generate odour nuisance, including but not limited to that on sewers;
- removing odour generating materials, sources in a timely fashion to limit the formation of odours;
- where odour forming materials are encountered and cannot be removed or avoided, the spraying with an approved oxidising agent will be undertaken to minimise the potential for release of odour; and
- use of an odour guard or masking agents will also be considered in situations where the risk of odour release cannot be eliminated or controlled.

b) Monitoring

5.3.4 The contractor will implement inspection and monitoring procedures to assess the effectiveness of measures to prevent dust and air pollutant emissions from the construction of the Proposed Development. This will include:

- Record all inspections of haul routes and any subsequent action in the dust log pro-forma.
- Conduct inspections to monitor compliance with dust control procedures in accordance with the measures outlined within this Outline CEMP. Record the results of the inspections, including nil returns, in the dust log pro-forma.
- Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Record any exceptional occurrences causing dust episodes on or off the Site and the action taken to resolve the situation.

5.4 Ecology and Biodiversity

a) Environmental Controls

i. Pre-construction Surveys

5.4.1 Prior to the commencement of works on the Site, ecological surveys will be conducted to:

- complete an ecological walkover to identify any potential additional ecological constraints since the surveys completed to inform the ES, e.g. nationally scarce plant species;
- inspect trees (either through a tree climbing and / or emergence survey) and buildings to be demolished (either through internal / external inspections and / or emergence surveys) to determine evidence of bat roosts in advance of any felling / demolition works. This is to be done, sufficiently in advance of felling/ demolition works to enable licence application(s) to be submitted to Natural England, if required;
- inspect and relocate any potential reptile refugia (prior to commencement of vegetation clearance/ construction works);
- confirm the continued absence of water voles. This will include surveys undertaken over at least two separate visits conducted sufficiently far apart to account for variations in habitat suitability across the season. One survey will be undertaken in the first half of the season (between mid-April/early May and the end of June) and one in the second half of the season (between July and September). The survey visits will be undertaken at least two months apart. All survey work will be undertaken in line with The Water Vole Mitigation Handbook;
- confirm the continued absence of otters (prior to commencement of construction);
- confirm the continued absence of otter holts from the location of the proposed footbridges;
- confirm no additional badger setts have become established; and
- inspect for nesting birds (if site clearance occurs in nesting bird season, late February to August inclusive).

5.4.2 All surveys will be completed by a suitably experienced ecologist.

ii. Mitigation Measures

General

- As part of method statements and daily activity briefings, ecological aspects relevant to the task will be identified to work operatives in the form of toolbox talks highlighting both protected species and designated sites in close proximity to the Site. The onsite environmental support contact details will be provided if further advice is required.
- Temporary demountable fencing will be erected on the work area boundary to demarcate the semi-natural habitats that will be retained during construction. A 10m buffer will be maintained with the boundary, where feasible. This will protect existing habitat and species from encroachment and trampling of these areas.
- Construction working hours will be respected for the benefit of nocturnal animals such as bats.
- Materials will not be stored within 10m, wherever feasible, of any identified water courses, surface water drains, woodland or hedgerows, or immediately upslope of the Sizewell Marshes SSSI.
- Lighting environmental controls, as set out in **Section 4.3: Lighting** of this Outline CEMP, will be implemented so that light spills on surrounding habitats and impacts on nocturnal animals will be minimised.
- Chemicals and hazardous materials will be stored in accordance with the existing EDF Energy (NGL)'s Technical Guidance Note (TGN) for Chemical Storage (BEG/SPEC/ENG/TGN/062) and relevant Environment Agency pollution prevention guidance, to prevent discharges into the surrounding environment, thereby protecting surrounding habitats.
- All clearing of vegetation will be undertaken under the supervision of an Ecological Clerk of Works (ECoW).
- During the preliminary and site preparatory works, a phased approach to site vegetation clearance and topsoil stripping will be adopted to discourage reptiles, brown hare and other small mammals away from the site of activity and into the surrounding suitable habitat.
- All vegetation clearance (including tree felling) will be outside of the bird breeding season (late February to August inclusive) and avoid the maternity (May to August inclusive) and hibernation (November to February inclusive) periods for bats, where practicable. Note that both the maternity and hibernation periods for bats are weather-dependent.
- Trees, shrubs and hedgerows that will be retained will be appropriately protected in accordance with the relevant guidelines in BS5837:2012 Trees in Relation to Design, Demolition, and Construction Recommendations, to ensure they are not damaged during the construction works. Tree surgery and felling operations will be undertaken in accordance with the recommendations set out in BS3998:2010: Tree Work, and to approved plans showing areas of existing trees and vegetation to be retained (and protected), and those to be removed.

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Sizewell Marshes SSSI

- When constructing the footpath within Sizewell Marshes SSSI, the land-take required will be minimised. Standard pollution prevention control measures will be enforced, and no fuels or chemicals will be stored, nor will any construction support facilities or compounds be located within the Sizewell Marshes SSSI. An ecological watching brief will be maintained when working within Sizewell Marshes SSSI.
- All soil removed during excavation within Sizewell Marshes SSSI will be stored and retained for reuse during habitat reinstatement within this area. Following completion of the construction of the footpath through Sizewell Marshes SSSI, any adjoining land affected will be reinstated to its original habitat.
- To prevent further intrusion into Sizewell Marshes SSSI, the construction working width associated with the pedestrian walkway and footbridges will be minimised.
- A drainage cut off gully will be installed to the west of the Western Access Road that will act as a final form of environmental protection for Sizewell Marshes SSSI and will prevent spillages or run-off into this receptor.

Bats

- Following the pre-construction surveys, all tree features where no evidence of use of bats has been confirmed will be immediately and safely blocked post-inspection to avoid occupation by bats, so trees may be felled without restriction.
- Should bats (or evidence of use by bats) be identified, the mitigation strategies laid out in the licence application(s) will be implemented (for example, the fitting of exclusion devices).
- Where trees with the potential to support bats require felling or surgery, and the absence of bats is not confirmed, sections/limbs supporting features suitable for bats will be 'soft-felled', i.e. removed to avoid breaching cavities, and lowered to the ground. These sections/limbs will be left on the ground overnight allowing any bats to leave (in the unlikely event that any are present).
- A final inspection of these trees will be undertaken as close to the timing of felling as possible to take into account the regular roost-switching behaviour displayed by tree-roosting bat species.

Nesting Birds

- Where it is not possible to undertake vegetation clearance works outside of the nesting bird season, an inspection for nests will be undertaken by a suitably experienced ecologist prior to the removal of vegetation. If nesting birds are identified during this process, works in the vicinity of the nest (estimated to be a 10m standoff) will cease until the chicks have fledged.

Water Voles

- If water voles are reconfirmed absent during pre-construction surveys, no further water vole mitigation will be required. If, however, water vole presence is confirmed, works in the footbridge areas will be micro-sited so that a 5m buffer is maintained between the works footprint and any water vole burrows, if possible. This will negate the need for a licence.
- If a 5m buffer cannot be maintained, then a licence from Natural England will be required. Providing works do not require more than 50m of vegetation clearance

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from either bank of the ditch, then works can be conducted under a class licence WML-CL31. Works to be conducted under this class licence will include:

- The removal of vegetation including marginal vegetation completed during the period between 15 February to 15 April inclusive. Vegetation cutting will not exceed 50m on each bank.
- Following vegetation removal, the cut area will be left intact for a minimum of five and a maximum of ten consecutive days before a destructive search is conducted. Prior to undertaking the destructive search, the cut area will be surveyed for evidence of the continued presence of water voles. Where this survey records no evidence that the burrows in the cut area are still occupied by water voles, each burrow affected will be carefully excavated and searched, and destroyed once the search is completed.
- Any water voles found during excavation of burrows will either be allowed to escape to an adjacent refuge area or be captured and released at an adjacent refuge area on the same day.

Reptile

- Reptiles from the Site will be mitigated for through displacement to avoid incidental mortality during vegetation clearance. Reptile mitigation for displacement and removal would be conducted through a combination of habitat manipulation and a phased vegetation clearance approach.
- This strategy will be implemented through the following actions within the stockpiling area, Coronation Wood and Pillbox Field:
 - Option 1: Clearance to displace reptiles will take place during the reptile active season, April to October, inclusive:
 - Cutting of vegetation to a height of approximately 100-150mm by an experienced sub-contractor. The area will then be left for a minimum of 24 hours to allow any reptiles to disperse.
 - The next stage, vegetation clearance to bare ground, will then take place. The area will then be left for another 24 hours.
 - Option 2: Vegetation and reptile displacement will commence during reptile hibernation period (i.e. November to March inclusive):
 - Cutting of vegetation to a height of approximately 100-150mm by an experienced sub-contractor;
 - As this first phase of vegetation clearance is to take place during winter, the next stage, vegetation clearance to bare ground, will not take place until after the reptile hibernation period, April to October.
- After each vegetation removal, all arising cuttings will be collected and removed to avoid creating additional constraints.
- Vegetation will be maintained in an unsuitable condition (bare ground) for reptiles until works commence and through the construction programme to discourage reptiles from recolonising the area.
- All works would be overseen by a suitably qualified ecologist. Within Pillbox Field, 10m buffer will be maintained with the north, east and south boundaries, where

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vegetation will be allowed to develop and reptile refugia and hibernacula placed. This mitigation will be in place prior to site clearance.

- No reptile fencing is proposed within the stockpiling area, Coronation Wood or Pillbox Field. In order to ensure the absence of reptiles from these areas, the vegetation will be managed to bare ground or as very short grass lengths. All storage bunds will be managed so that they remain unsuitable to reptiles. All locations will be regularly inspected by an ecologist.
- A destructive search and topsoil strip under ecologist supervision during the active season (April to October) will follow the displacement exercise. Any reptiles found during vegetation and topsoil clearance will be relocated to suitable habitat outside the construction area.
- Details of the reptile mitigation and enhancement measures would be presented in the detailed CEMP, to be developed by the appointed contractor.

b) Monitoring

- A series of monitoring measures in relation to control of groundwater and surface water pollution have been proposed, as discussed in **Section 5.10**. These are also relevant for monitoring construction effects on the Sizewell Marshes SSSI.
- In addition, the Contractor will undertake regular checks of construction and demolition lighting to monitor and adjust luminaires to minimise any light spill into the surrounding habitats and nearby Sizewell Marshes SSSI (see **Section 4.3 Lighting**).
- All vegetation clearance would be conducted under the supervision of a suitably qualified ecologist, who would monitor for nesting bird, reptile, and small mammal constraints. A suitably qualified ecologist would also oversee all ground-breaking activities and inspect all excavations daily.

5.5 Landscape and Visual

a) Environmental Controls

5.5.1 Mitigation measures to manage potential landscape and visual effects comprise:

- Hoardings and fencing to be provided and maintained by the Contractor. All worksites will be completely fenced from public ingress.
- Contractor will instigate a programme of maintenance and regular inspection to ensure that all site fencing remains secure and in good condition, and keep the Site entrance and neighbouring roads as clean and tidy as possible.
- Measures set out within **Section 4.3** will be implemented to minimise nuisance or harmful impacts arising from obtrusive light on sensitive receptors.

b) Monitoring

5.5.2 No specific during construction monitoring for landscape and visual impacts is proposed.

5.6 Historic Environment

a) Environmental Controls

5.6.1 Mitigation measures to manage potential effects on the historic environment comprise:

- archaeological programme of works such as a staged programme of archaeological investigation, recording and dissemination of information will be agreed with ESC; and
- a number of the buildings to be relocated may have heritage interest and a building recording survey will be undertaken ahead of demolition. This is subject to consultation with Historic England.

If archaeological remains are found after construction work has begun:

- stop work immediately in the area;
- mark the area to avoid further disturbance;
- protect the find by fencing/blocking it off; and
- inform EDF Energy (NGL) immediately.

b) Monitoring

5.6.2 No specific monitoring during construction for effects on historic environment is proposed.

5.7 Amenity and Recreation

a) Environmental Controls

5.7.1 Mitigation measures to manage potential amenity and recreation effects comprise:

- Method Statements will be provided for works on or adjacent to Bridleway 19 along Sandy Lane and Sandlings Walk and along Sizewell Gap, to minimise safety risk and impacts on recreational receptors.
- Measures set out within **Sections 5.2, 5.3, 5.5** and **5.8** will also mitigate effects on amenity and recreation receptors.

b) Monitoring

5.7.2 No specific monitoring for effects on amenity and recreation is proposed.

5.8 Noise and Vibration

a) Environmental Controls

5.8.1 EDF Energy (NGL) will apply Best Practicable Means (as defined by section 72 of the Control of Pollution Act 1974) to minimise construction noise and vibration on neighbouring sensitive receptors.

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- 5.8.2 The following hierarchy of methods of noise management and noise control will be applied to all activities and operations:
- management of hours of working or 'on' time for noisy operations;
 - selection of plant and equipment to minimise noise emissions;
 - attenuation of noise and vibration at source; and
 - attenuation of noise and vibration during transmission from source to receiver.
- 5.8.3 As set out within **Section 4.4**, working hours for external construction and demolition works will be restricted to 0700-1900 hours Monday to Saturday with 24-hour use limited to exceptional activities only. Operations outside of the above hours will only be undertaken with the agreement of ESC. HGV deliveries will be limited to the hours 08:00 - 18:00 hours Monday to Friday, and 09:00-16:00 hours on Saturdays.
- 5.8.4 The recommendations of BS 5228: Code of practice for noise and vibration control on construction and open sites parts 1 and 2, will be implemented, including measures outlined below:
- Wherever possible construction methods will be adopted which are not inherently noisy. Where this is not possible, care will be taken with the choice of plant and working methods.
 - Ensure that noisy plant is located as far from receptors as practicable and screened using temporary barriers, if required.
 - Noisy activities will be conducted at less sensitive periods wherever practical to reduce disturbance.
 - In the absence of a permanent power supply to any area, battery powered generators will endeavour to be used, though diesel generators will still be needed due to the power demand.
 - Low noise generators and compressors will be used to minimise noise.
 - Plant will not be operated with covers open or removed, to ensure effective acoustic insulation is provided at all times.
 - All plant will be properly maintained, with engines being switched off when not in use.
 - Haul roads will be kept in good condition to minimise noise generated from vehicles travelling over uneven surfaces and pot holes.
 - Use of reversing alarms to give proper warning, whilst also minimising noise impacts off site.

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- Restricting drop heights during lorry loading to the minimum required for safe and efficient operations.
- Ensuring that the location of sensitive receptors around the Site and nature of the work is considered when deciding the location of equipment.
- The selection of plant, equipment and systems of work, should ensure both noise and vibration is reduced to a minimum and must be below permitted levels at sensitive receptors.

5.8.5 Furthermore, the following measures will be adopted:

- Liaison with people who may be affected to advise them about potential noise or vibration impacts predicted.
- Provision of training and instruction to site personnel on methods and techniques of working to minimise off-site noise and vibration impacts.
- Where possible, avoidance of noisy works within Coronation Wood Development Area and Pillbox Field between 13:00 and 19:00 hours on Saturdays. This would include the use of chainsaws, stump grinders and mulchers during the clearance of the wood; excavators and dump trucks during groundworks; and vibratory compactors and concrete pumping.
- Once planning permission has been granted and contractors appointed, detailed working methods will be drawn up and a mitigation scheme put in place to ensure that significant effects are avoided and levels are reduced so far as can reasonably be achieved.
- EDF Energy (NGL) will also have a system for the receipt and recording of any noise or vibration complaints from occupiers of noise sensitive receptors, and procedures for investigating and acting appropriately as necessary upon those complaints (see **Section 3.5**).

b) Monitoring

5.8.6 EDF Energy (NGL) will engage in early discussions with the ESC on the scope of the necessary noise and vibration monitoring. EDF Energy (NGL) will only use suitably qualified staff to carry out noise and vibration monitoring.

5.8.7 Monitoring will be particularly focused on the early stages of each new construction activity or process and any work undertaken during extended, night time and weekend working hours.

5.9 Land Quality

a) Environmental Controls

5.9.1 EDF Energy (NGL) will adopt appropriate measures to protect, assess, mitigate and remediate land through further investigation and assessment of the ground conditions underlying the Site. This will include additional ground investigation, if required, and completion of risk assessment(s) and the incorporation of mitigation/remedial measures to reduce impacts from ground instability, soil compaction/settlement and contamination as required.

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- 5.9.2 Appropriate procedures to address and manage the risks from Unexploded Ordnance (UXO) will be implemented, this may include a combination of UXO safety and awareness briefings, non-intrusive geophysical surveys and an on-call Explosive Ordnance Disposal (EOD) engineer during intrusive works to identify and advise on appropriate action in the event of a suspicious item being encountered.
- 5.9.3 A piling risk assessment as per the Environment Agency Guidance on Pollution Prevention: Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination will be undertaken prior to construction works.
- 5.9.4 Training will be given to site operatives via Tool Box Talks (TBTs) on land quality protection measures and oil and chemical control.
- 5.9.5 In the event that contamination is found at the Site, during excavation and demolition the following procedures and precautions will be implemented:
- Site workers will be informed of the contamination on site and the potential health effects from exposure.
 - If any unexpected contamination is found, work will stop immediately and site management informed. The area will be cordoned off and signage erected to prevent entry. Advice will be sought from an appropriately qualified Environmental Consultant. ESC will be informed of the contamination found and the proposed way to manage the material prior to works recommencing.
 - Soil sample testing will be undertaken when unexpected contamination is discovered to determine the extent in areas to be excavated;
 - Appropriate provision and enforcement of use of suitable Personal Protective Equipment (PPE) for workers who may be potentially impacted by working in areas of contamination.
 - Good hygiene will be enforced on site and washing facilities maintained.
- 5.9.6 Further measures to be adopted include, but are not limited to:
- Undertaking health and safety risk assessments, method statements and specifying appropriate PPE for the protection of construction workers in accordance with the COSHH Regulations.
 - Oil, fuel and chemicals will be stored in compliance with their COSHH assessment, together with any Sizewell B station environmental requirements and secured when not in use. All fuel and other hazardous materials will not be stored upslope of the adjacent Sizewell Marshes SSSI. Oil storage containers (mobile bowsers and drums) will be double bunded (to at least 110% of the stored capacity), and located at least 10 m away from watercourses or road gulleys and away from drainage systems. Pipework will be stored within the bund, and mobile bowsers will be lockable and be locked when not in use. Refuelling will only be allowed in designated, hardstanding areas and a minimum of 10 m from a drain. Fuel systems will have automatic shut off 'pistol grip' nozzles;
 - When construction compounds are not in active use (out of core hours), material stores and plant will be locked to prevent unauthorised use which could cause a pollution incident. Mobile plant parked overnight within the site will also be locked to prevent unauthorised use;

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- Working methods during construction to ensure that there is no surface water run-off from the works or any stockpiles into adjacent surface watercourses/leaching into underlying groundwater in accordance with Pollution Prevention Guideline, Working at Construction and Demolition Sites;
- Implementation of appropriate pollution incident controls such as spill kits will be available, and any spillage will be disposed of in accordance with the Hazardous Waste and Landfill Regulations. Sand bags or stop logs will also be available for deployment on any outlets from the site drainage system in case of emergency spillages;
- Preparation and implementation of a Materials Management Plan (MMP) to document how excavated materials will be managed. Topsoil and sub-soil will be separately stockpiled and reused on Site, subject to demonstrating suitability for reuse criteria; and
- Stockpiles will be managed to reduce soil erosion, windblown dust and surface water run-off and silt fences (or other suitable control measures) installed to reduce runoff from bare ground.

b) Monitoring

5.9.7 No specific monitoring for effects from land contamination is proposed.

5.10 Water Quality and Hydrogeology.

a) Environmental Controls

- 5.10.1 Contractor will manage Site activities and working methods to protect the quality of surface water and groundwater resources. Precautions will also be taken to prevent damage to services and to avoid pollution during ground penetration, excavation and service diversions.
- 5.10.2 A detailed assessment of the likely volumes of groundwater that would need to be pumped during Outage Store basement construction will be undertaken once detailed design information is available and prior to the temporary works being carried out. This will enable an appropriate methodology to be developed for managing the abstraction including limiting the volumes to within 20m³/day. Groundwater quality testing will also be undertaken. The discharge methods will confirm whether there is a need for an Environmental Permit to enable the discharge. If required, an Environmental Permit will be obtained. Should significant groundwater contamination be encountered during dewatering at the location of the Outage Store, appropriate treatment may be required prior to discharge of any pumped water.
- 5.10.3 Where required, EDF Energy (NGL) will obtain appropriate approval for works from the relevant regulatory body or statutory undertaker, which could affect any surface water or groundwater resource.
- 5.10.4 In addition to the measures set out within **Section 5.9**, the following procedures will be implemented to mitigate the risk of water pollution:

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General

- Training will be given to site operatives via Tool Box Talks (TBTs) on water protection measures and oil and chemical control.
- Good hygiene will be enforced on site and washing facilities maintained;
- BPM will be used (e.g. through the use of silt traps and the re-use of water in wheel washers) where appropriate.
- All practical measures will be employed to avoid any significant adverse effects to land or controlled water. Whilst the Environment Agency Pollution Prevention Guidelines (PPG) have been withdrawn, in the absence of further guidance, it is still considered best practice: Therefore the following Environment Agency PPGs will be complied with:
 - PPG01 – General Guide to the Prevention of Water Pollution;
 - PPG02 Above Ground Oil Storage Tanks;
 - PPG05 Works Near or Liable to Affect Watercourses;
 - PPG06 Working at Construction and Demolition Sites;
 - PPG08 Storage and disposal of used oils;
 - PPG11 Preventing pollution at industrial sites
 - PPG13 Vehicle Washing and Cleaning;
 - PPG18 Managing Fire Water and Major Spillages;
 - PPG21 Pollution Incident Response Planning;
 - PPG 22 Dealing with Spills;
 - PPG26 Storage and Handling of Drums and Intermediate Bulk Containers;
 - PPG27 Installation, Decommissioning and Removal of Underground Storage Tanks.
- Other suitable guidance will be applied, including:
 - Ensuring all site activities are carried out in accordance with the Water Resources Act;
 - Adherence to the Construction Design and Management (CDM) Regulations, where applicable;
 - CIRIA (2001) Control of water pollution from construction sites: A guide to good practice;
 - Environment Agency (2011) Regulatory Position Statement: Managing concrete wash waters on construction sites – good practice and temporary discharges to ground or to surface waters.
- Temporary connections will deal with incoming water supply onto site and discharges. Water from Site, once treated, will run into the nearest sewer, where possible.
- Foul discharge from the Contractor's site cabins/compound will be tied into the nearest foul sewerage system, where possible, otherwise a self-contained chemical system will be provided.

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- Concrete and cement mixing and vehicle washing will take place in controlled impermeable areas to prevent contamination. These areas will be situated at least 10m away from surface water receptors. All washing out of equipment would be undertaken in a contained area, and all water would be collected for appropriate treatment. A suitable settlement and recirculation system will be implemented for all site water run-off and construction water used for washing and dampening down;
- Wheel wash facilities will be fed from a mobile bowser. Note that it is assumed that the wheels of all vehicles delivering materials to Site will be washed on departure from their point of origin and the wash down of vehicles will only take place in designated areas;
- A suitable settlement system will be implemented for all Site water run-off and construction water used for washing and dampening down;
- Washout water is to be directed to sump for settlement;;
- Mobile bowsers must be lockable and be locked when not in use. They will also be double bunded.
- To reduce any increase in runoff to the surface water receptor during the construction process, the period of exposure of bare areas and uncontrolled runoff of newly constructed areas will be limited as far as reasonably practicable.

Sediment in run-off

- Working methods during construction are to ensure that there is no surface water run-off from the works or any stockpiles into adjacent surface watercourses/leaching into underlying groundwater in accordance with Pollution Prevention Guideline, Working at Construction and Demolition Sites.
- Implementation of appropriate dust suppression measures to prevent migration of contaminated dust.
- Hardstanding areas (including roads) will be kept clean of silt and soils.
- All stockpiles will have silt fences (or other suitable control measures) installed to reduce runoff from bare ground.
- Stockpile management (such as water spraying, hydro-seeding and avoiding over stockpiling to reduce compaction of soil and loss of integrity) to reduce soil erosion, windblown dust and surface water run-off.
- Remediation of soil/groundwater contamination (e.g. source removal, treatment or capping) will be undertaken if further investigation and risk assessments deem necessary.
- Lined skips (or similar) for washout of trucks and pumps will be used.
- Concrete washout will be in controlled areas to prevent groundwater contamination.

Leaks and Spills

- Implementation of appropriate pollution incident controls, e.g. plant drip trays and spill kits.
- Implementation of appropriate and safe storage of fuel, oils and equipment during construction.
- Refuelling will only be allowed in designated, hardstanding areas and a minimum of 10m from a drain. Fuel systems will have automatic shut off 'pistol grip' nozzles.
- A Pollution Prevention and Incident Response Plan will be prepared, as explained in **Section 4.6**.

b) Monitoring

5.10.5 A series of monitoring measures in relation to control of surface water and groundwater pollution have been proposed:

- Monitoring of surface water quality during the construction phase is proposed in order to ensure that the specified mitigation measures are effective and that there are no impacts on surface water receptors. Regular inspections of all surface water collection systems will be undertaken to check these are working effectively and that there is no direct discharge of surface water into Sizewell Marshes SSSI.
- Throughout construction and demolition, visual inspections will be conducted within the Sizewell Drain to ensure that the mitigation is working effectively.
- Groundwater monitoring should be continued across the wider Site during the construction phase to enable an ongoing review of potential impacts and where necessary implement additional mitigation measures;

5.11 Flood Risk

a) Environmental Controls

5.11.1 A series of measures to manage flood risk during construction will be included within the construction drainage strategy:

- The construction drainage strategy will include the following measures:
 - Blank off adjacent gulleys and protect manholes to stop ingress of debris;
 - Use lined skips (or similar) for washout of trucks and pumps;
 - During earthworks, the excavation should prove free draining (as into exposed sand);
 - After construction of concrete foundations (notably for basements) any ponded water (unless left to evaporate) will be tested and subject to the results be either pumped into the existing Sizewell B station drainage system or taken off site (by tanker);
 - where practicable, contractors should avoid locating temporary structures, such as accommodation, and the placing of construction equipment within Flood Zone 3 or areas at significant risk of flooding from other sources;

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- should an area be needed for material storage within the flood zone it is acknowledged that a plan for the safe removal or safeguarding of materials during a flood event is required; and
- bunds could be put in place to safeguard the area should there be overtopping or a breach in the defences resulting in flooding, however, this would need to show that any flow paths are not altered and flood risk is not increased.
- If the permanent design results in soakaways then, depending upon location relative to the construction site layout, these could be constructed first to use during the construction process;
- The above early constructed soakaways and/or existing local soakaways could be used to discharge surface water runoff from Site, in which case a temporary silt trap will be installed; and
- The need for a perimeter cut-off drain will be considered, notably to the west of the temporary access road for Coronation Wood to provide maximum protection to the adjacent SSSI.

b) Monitoring

- 5.11.2 No further monitoring measures during construction have been proposed in addition to those set out within **Section 5.10**:

5.12 Radiological Effects

- 5.12.1 To ensure compliance with the Sizewell B Nuclear Site Licence, Environmental Permit for radioactive substances and Ionising Radiation Regulations, a radiological survey of the existing Outage Store will be undertaken by EDF Energy (NGL) to confirm if any further measures are required prior to the start of demolition works.
- 5.12.2 It is noted that it is only the demolition of the Outage Store that raises any radiological risks. Existing general area surveys have shown no contamination of the area and as such only limited surveying would be carried out beforehand as a precautionary measure.
- 5.12.3 If required following the radiological survey, EDF Energy (NGL) would develop a strategy to decontaminate and demolish the radioactive structures and determine how the radioactive waste would be managed, including suitable monitoring protocols. This strategy would be agreed in consultation with the Environment Agency (EA) prior to the start of demolition works. Waste from the works would be managed in compliance with the existing Sizewell B site and company procedures.
- 5.12.4 The Proposed Development will not result in any additional contribution to the current permitted discharges from Sizewell B, so will not affect the extent of the current Environmental Monitoring Programme (EMP). The Proposed Development has a low potential to change the results obtained by the current EMP, however, prior to construction of the relocated facilities EDF Energy (NGL) will inform the EA of any sampling locations where there is a potential for results to be affected.

5.13 Materials

5.13.1 Subject to technical requirements and specifications, materials used, specified, selected, sourced, handled, managed, treated, recycled and disposed of will be managed on the basis of the following principles:

- Storage and handling of topsoil for reuse on site will comply with the relevant standard BS3882:2015 Specification for Topsoil, any exemptions from standards will be secured prior to removal, storage or re-use.
- Materials or equipment will not be stored within 10m, wherever feasible, of any identified water courses, surface water drains, woodland or hedgerows, or immediately upslope of the Sizewell Marshes SSSI.
- Implementation of an appropriate Materials Management Plan (MMP) in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP) to document how excavated materials will be managed. The management plan will include on-site testing and assessment of materials, a verification plan and methodology to identify what, if any, remedial actions will be undertaken and how such actions will be validated and recorded if unexpected contamination is encountered during the works and a verification plan to record the placement of materials at the Site.
- Using of sustainable new timber - FSC or equivalent certification.
- Minimising life cycle negative environmental impacts from materials use.
- Lowering the embodied carbon in materials (including through energy efficient manufacturing and through local sourcing where practicable and economic, to avoid excessive transport and to support the local workforce and community).
- Minimising total use of materials and minimising waste through design and good practice in logistics and materials management during construction.
- Minimising use of virgin materials by maximising re-used and recycled content (including through the re-use of non-contaminated materials excavated from the site);
- Designing and constructing to maximise re-use and recycling at end of life;
- Limiting the use of materials with a high environmental, health or reputational impact (e.g. Polyvinyl Chloride (PVC), following the pyramid of plastics and specifying substitutes to PVC, such as non-plastic alternatives, or less problematic plastics, including polyethylene (non-chlorinated types), polypropylene, and sustainably grown bio-based plastics where possible and suitable);
- Encouraging the specification of environmentally preferable options through innovative and efficient material use as appropriate (e.g. materials which rate highly against the BRE Green Guide to materials (A-C preferable), recycled timber and recycled/secondary aggregates where available locally).

6. SITE WASTE MANAGEMENT

6.1 Waste Management

- 6.1.1 All construction waste will be managed using existing Sizewell B procedures and processes throughout all phases of the development in accordance with the waste hierarchy and proximity principle by:
- prevention and reduction of the volumes of waste produced;
 - maximisation of re-use and recycling within the wider development and use of local/regional facilities; and
 - minimisation of the impact upon the existing waste management infrastructure.
- 6.1.2 Adherence to these will ensure waste streams are managed in accordance with applicable UK legislation, policy and guidance and EDF Energy (NGL)'s aims and objectives.
- 6.1.3 A Site Waste Management Plan (SWMP) will be prepared by the Contractor in line with the requirements of the Outline Construction Waste Management Strategy included within **Annex B**. This includes information regarding the type and quantities of waste to be produced during demolition and construction, plans for the segregation and control, reuse or disposal of waste.

7. FIGURES

Figure 1 : Site Location

Figure 2 : Site Layout

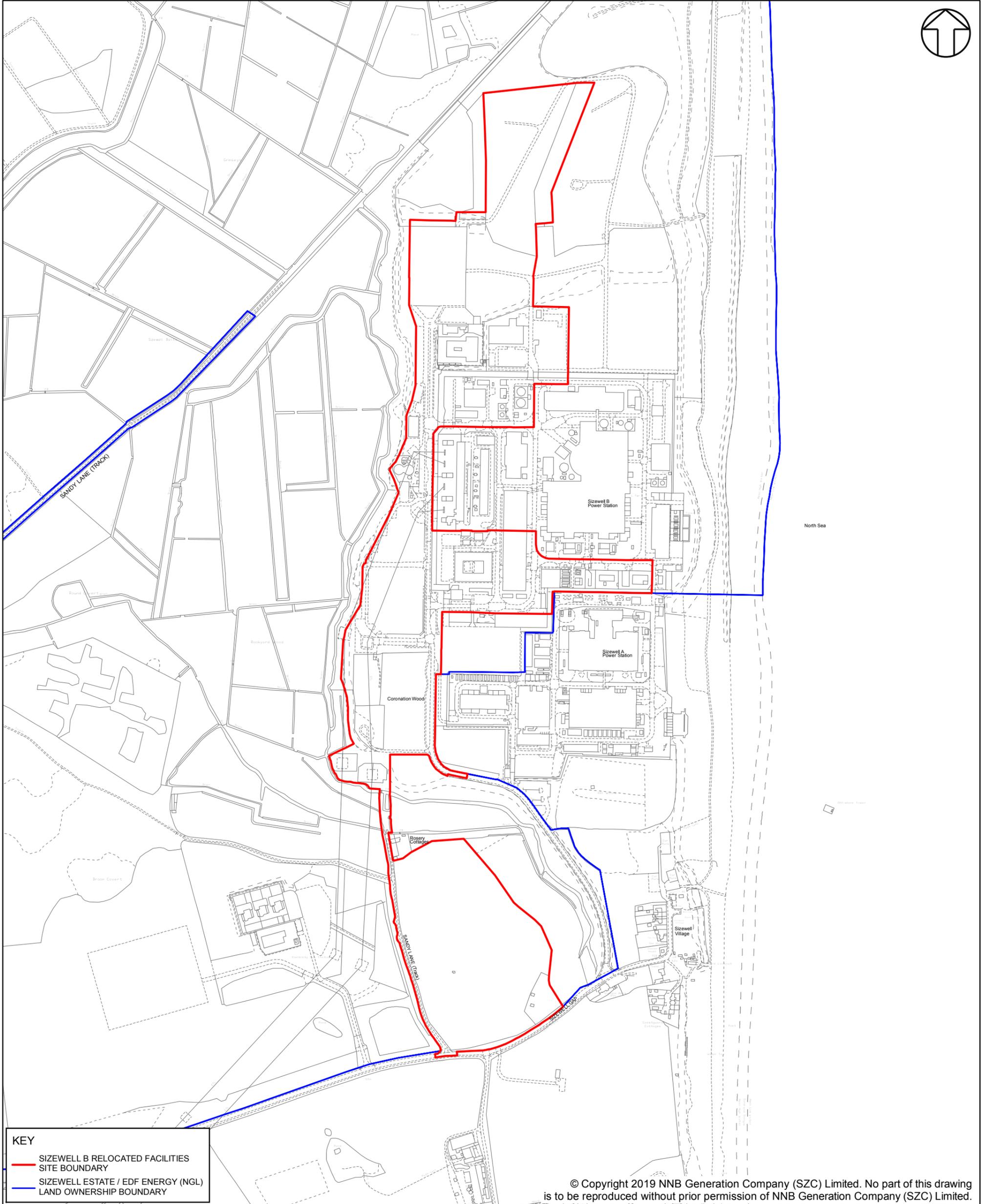
Figure 3 : Environmental Constraints

Figure 4 : Construction Traffic Route

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KEY	
	SIZEWELL B RELOCATED FACILITIES
	SITE BOUNDARY
	SIZEWELL ESTATE / EDF ENERGY (NGL) LAND OWNERSHIP BOUNDARY

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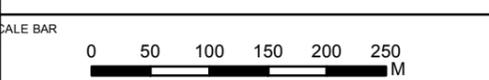
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 SITE BOUNDARY

DOCUMENT:
 SIZEWELL B RELOCATED FACILITIES
 OUTLINE CONSTRUCTION
 ENVIRONMENTAL MANAGEMENT
 PLAN

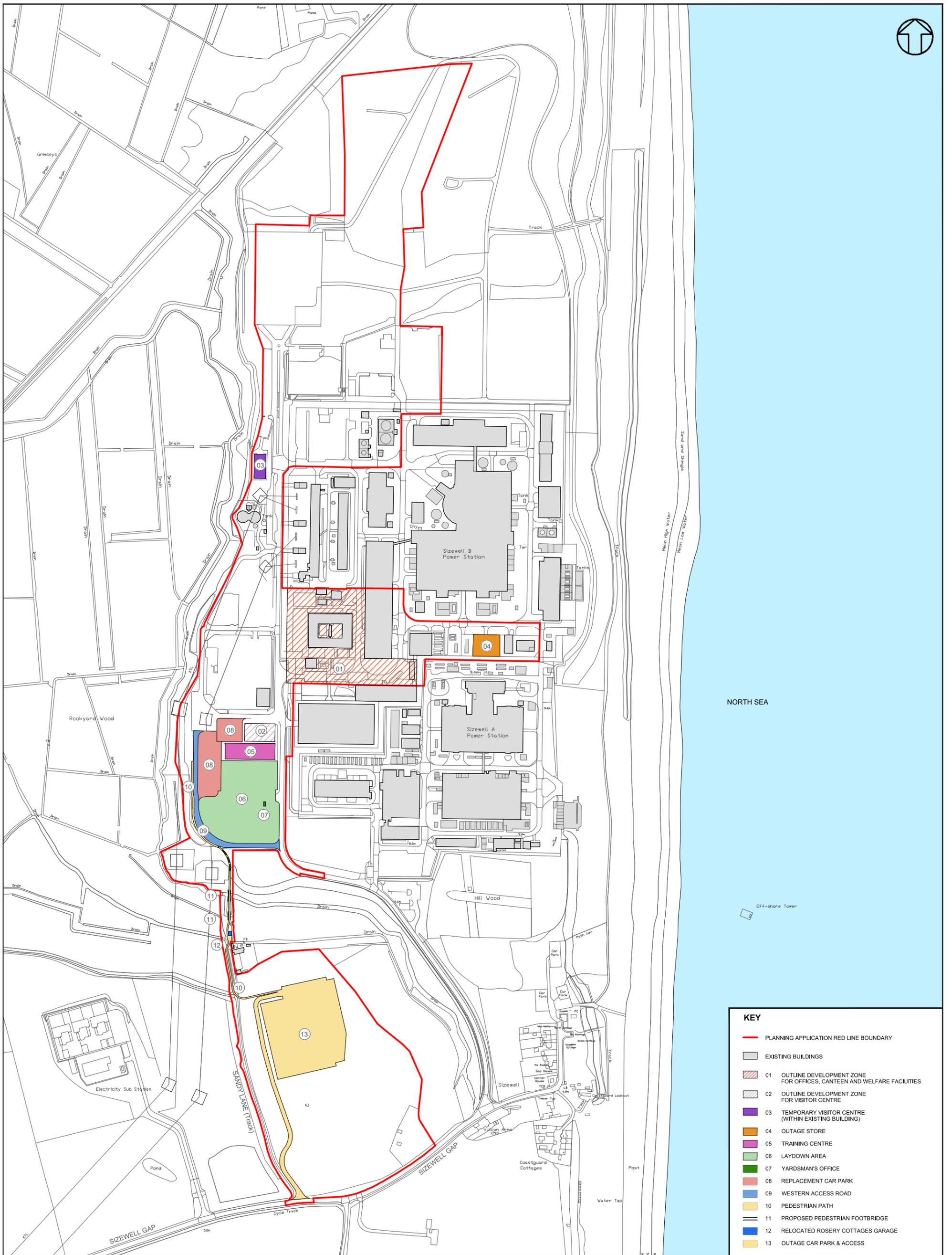
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NORTH SEA

KEY	
	PLANNING APPLICATION RED LINE BOUNDARY
	EXISTING BUILDINGS
	01 OUTLINE DEVELOPMENT ZONE FOR OFFICES, CANTEEN AND WELFARE FACILITIES
	02 OUTLINE DEVELOPMENT ZONE FOR VISITOR CENTRE
	03 TEMPORARY VISITOR CENTRE (WITHIN EXISTING BUILDING)
	04 OUTAGE STORE
	05 TRAINING CENTRE
	06 LAYDOWN AREA
	07 YARDSMAN'S OFFICE
	08 REPLACEMENT CAR PARK
	09 WESTERN ACCESS ROAD
	10 PEDESTRIAN PATH
	11 PROPOSED PEDESTRIAN FOOTBRIDGE
	12 RELOCATED ROSERY COTTAGES GARAGE
	13 OUTAGE CAR PARK & ACCESS

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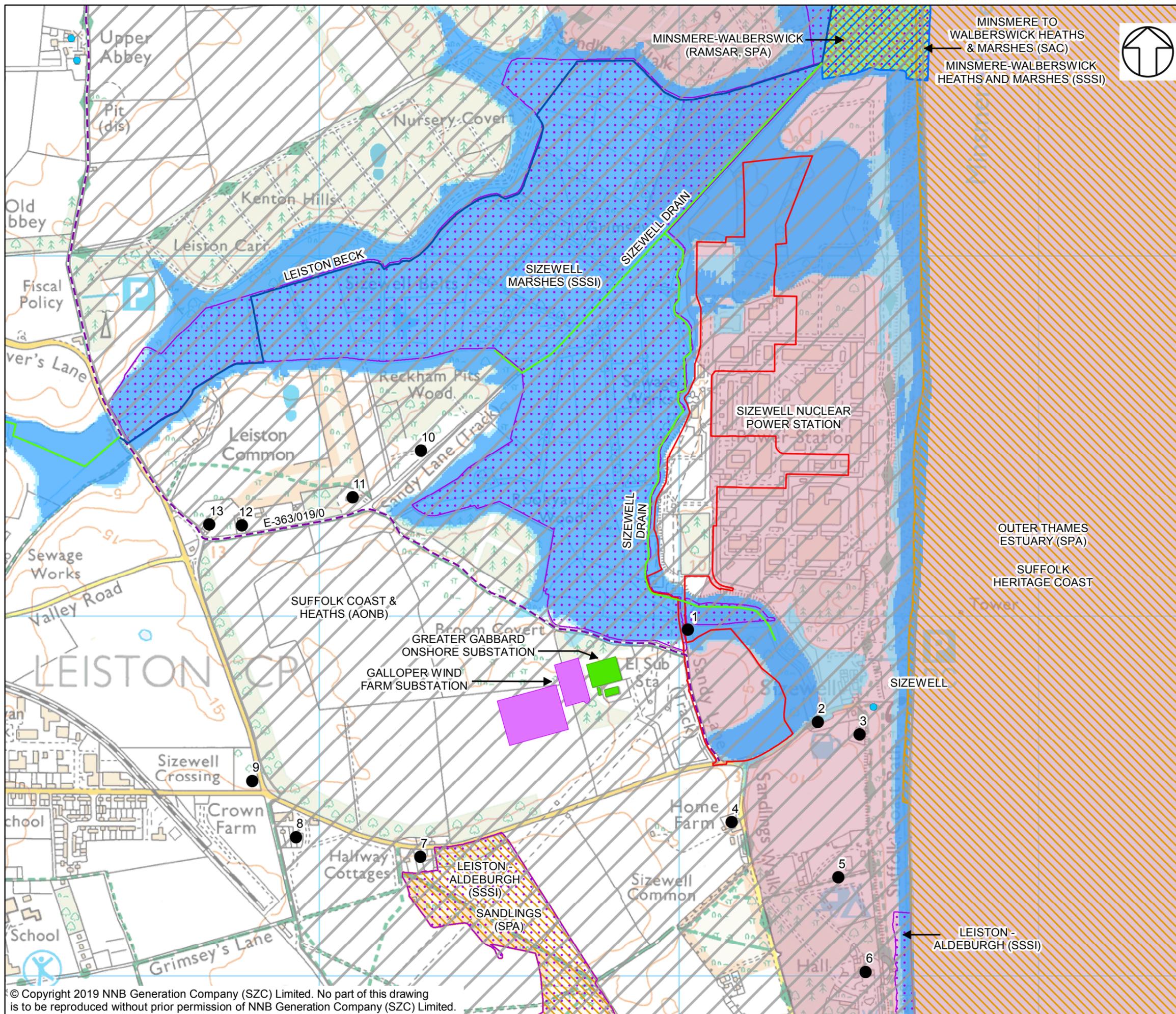
DOCUMENT: SIZEWELL B RELOCATED FACILITIES OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN	
DRAWING NO: SZC-RF0000-XX-000-DRW-100002	REVISION: 01
DATE: APR 2019	SCALE: AM
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DRAWING TITLE: FIGURE 2 PROPOSED SITE LAYOUT PLAN	
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Note: Figure adapted to A3 from Planning Drawing Reference SZC-RF0000-XX-000-DRW-100002 - for use in the outline Construction Environmental Management Plan				
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REVISION	DATE	DRAWN	CHECKED	APPROVED
PLANNING APPLICATION SUBMISSION				
REVISION COMMENT				

SCALE BAR: 40m 0 40 80 120m
SCALE 1:2500

EDF ENERGY
NUCLEAR GENERATION LIMITED



NOTES

KEY

- SIZEWELL B RELOCATED FACILITIES SITE BOUNDARY
- BRIDLEWAY 19
- MAIN RIVER
- OTHER WATERCOURSE
- LISTED BUILDING GRADE II
- AREA OF OUTSTANDING NATURAL BEAUTY (AONB)
- SPECIAL AREA OF CONSERVATION (SAC)
- SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
- SPECIAL PROTECTION AREA (SPA)
- RAMSAR
- HERITAGE COAST
- FLOOD ZONE 2
- FLOOD ZONE 3
- GALLOPER WIND FARM SUBSTATION
- GREATER GABBARD ONSHORE SUBSTATION

- CLOSEST RESIDENTIAL RECEPTORS
- 1. ROSERY COTTAGES (NGL OWNED)
- 2. VULCAN ARMS PUBLIC HOUSE
- 3. COASTGUARD COTTAGES
- 4. HOME FARM
- 5. BEACH VIEW HOLIDAY PARK
- 6. SIZEWELL HALL
- 7. HALFWAY COTTAGES
- 8. CROWN FARM COTTAGES
- 9. CROWN LODGE
- 10. KEEPERS COTTAGES
- 11. RECKHAM LODGE
- 12. THE WILDERNESS
- 13. COMMON FARM

FULL DETAILS OF STATUTORY DESIGNATED ECOLOGICAL SITES ARE SHOW IN FIGURE 6.4

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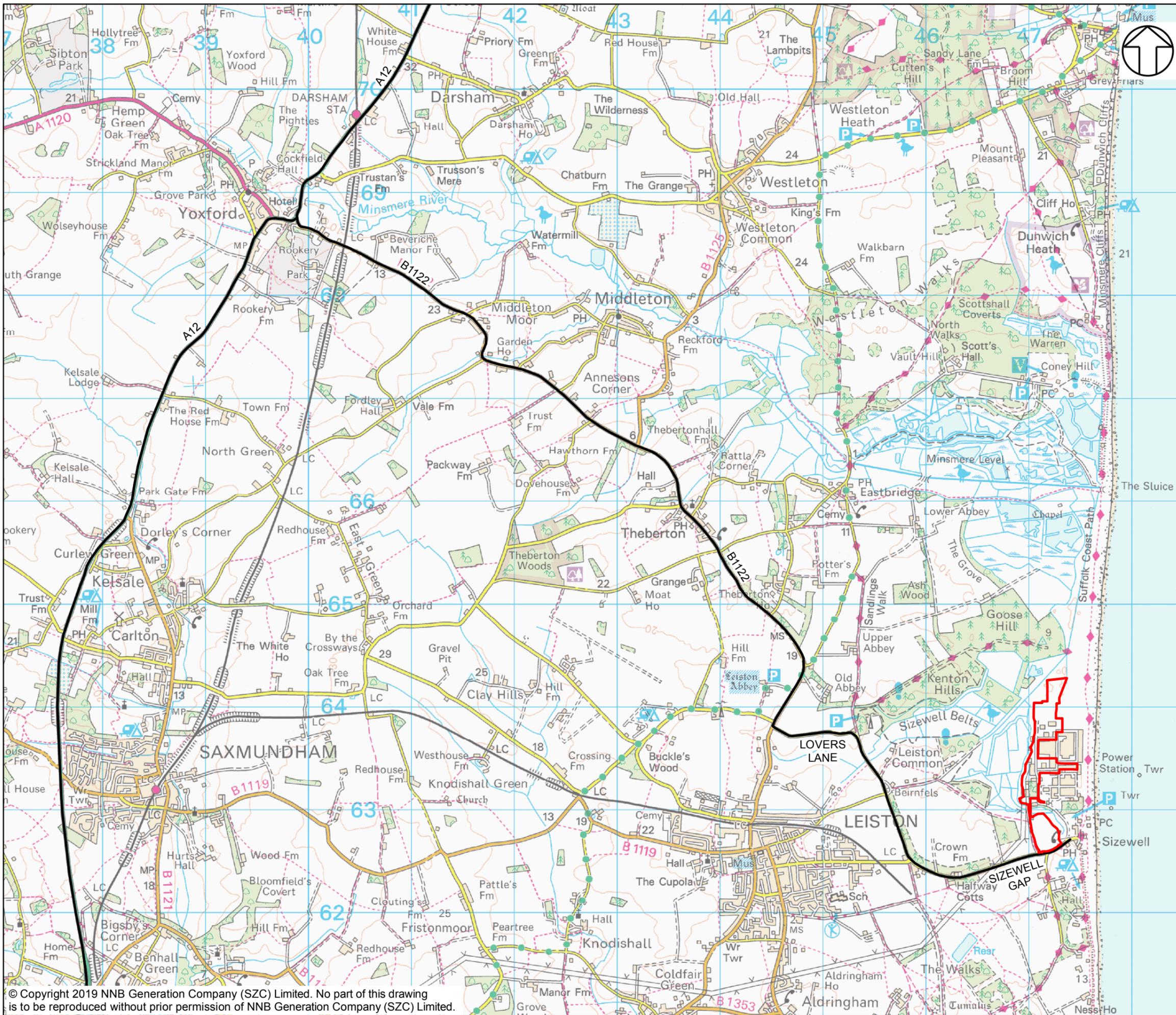
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 SIZEWELL B RELOCATED FACILITIES
 OUTLINE CONSTRUCTION
 ENVIRONMENTAL MANAGEMENT PLAN

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 SITE ENVIRONMENTAL CONTEXT

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 FIGURE 3

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NOTES

KEY

- SIZEWELL B RELOCATED FACILITIES
- SITE BOUNDARY
- PROPOSED CONSTRUCTION HGV ACCESS

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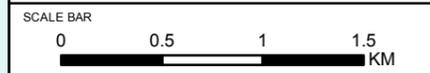
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 SIZEWELL B RELOCATED FACILITIES
 OUTLINE CONSTRUCTION
 ENVIRONMENTAL MANAGEMENT
 PLAN

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 CONSTRUCTION TRAFFIC ROUTE
 TO THE DEVELOPMENT SITE

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 FIGURE 4

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8. LIST OF ABBREVIATIONS

Abbreviation	Term
AOD	Above Ordnance Datum
AONB	Areas of Outstanding Natural Beauty
CDM	Construction Design and Management
CEMP	Construction Environmental Management Plan
COSHH	Control of Substances Hazardous to Health
DoWCoP	Definition of Waste Code of Practice
EIA	Environmental Impact Assessment
ESC	East Suffolk Council
EMS	Environmental Management System
GPS	Global Positioning System
HGV	Heavy Goods Vehicles
IAQM	Institute of Air Quality Management
MMP	Materials Management Plan
NG	Nuclear Generation
OCMS	Outline Construction Method Statement
PPE	Personal Protective Equipment
PPG	Pollution Prevention Guidelines
PVC	Polyvinyl Chloride
RCP	Reactor Coolant Pump
SAC	Special Area of Conservation
SCC	Suffolk County Council
SCDC	Suffolk Coast District Council
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
TBT	Tool Box Talks
UXO	Unexploded Ordnance
WSI	Written Scheme of Investigation

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ANNEX A INDICATIVE CONSTRUCTION PROGRAMME

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ANNEX B CONSTRUCTION WASTE MANAGEMENT STRATEGY

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Sizewell B Relocated Facilities Outline Construction Waste Management Strategy

April 2019

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Contents

1	Introduction	7
1.1	Introduction	7
1.2	Waste Definition	7
1.3	Key Performance Indicators	8
1.4	Assessment Methodology	9
1.4.1	Study Area	9
1.4.2	Significance	10
1.4.3	Assumptions and Limitations	10
2	Waste Legislation and Policy	11
2.1	Legislative Considerations	11
2.2	National Policy and Legislation	11
2.3	National Policies and Strategies	11
2.4	Regional Policy	12
2.5	Standards and Industry Guidance	12
3	The Proposed Development	13
3.1	Proposed Works	13
3.2	Timescales	13
4	Baseline of Local and Regional Waste Facilities	15
4.1	Introduction	15
4.2	Local Facilities	15
4.2.1	Material Re-Use	16
4.2.2	Recycling	16
4.2.3	Other Recovery	17
4.2.4	Disposal	17
4.3	Total Capacity	17
4.4	Regional Facilities	17
5	Design and Mitigation Measures	19
5.1	Waste Management Arrangements	19
5.2	Identification and Sorting	19
5.3	Storage	20
5.4	Transfers Offsite	20
5.5	Mitigation Measures	20
6	Assessment of Effects	23

6.1	Types and Quantities of Materials and Effects	24
6.2	Types and Quantities of Waste and Effects	26
6.2.1	Excavation and Soil Management	26
6.2.2	Construction and Demolition Waste	27
6.2.3	Hazardous Waste	28
6.2.4	Waste Quantities	28
7	Monitoring Requirements	29
7.1	Monitoring	29
7.2	Records and Reporting	29
8	Summary	30
	Appendices	31
A.	Key Policy, Regulation, Standards and Guidance	32
A.1	Waste Framework Directive (2008/98/EC)	32
A.2	Environmental Permitting (England and Wales) Regulations 2016 (2016/1154)	32
A.3	The Environmental Protection Act 1990	32
A.4	National Waste Management Plan for England, 2013	33
A.5	Suffolk Waste Core Strategy, 2011	34
A.6	Suffolk Minerals and Waste Development Framework	34
A.7	Suffolk Minerals and Waste Development Scheme, 2017	35
A.8	Suffolk Coastal Local Plan Review	35
A.9	Suffolk Coastal District Local Plan - Core Strategy & Development Management Policies, 2013	35
A.10	Suffolk Coastal Local Development Scheme 2015	36
A.11	Contaminated Land Applications in Real Environments (CL:AIRE)	36
B.	Local and Regional Waste Facility Assessment	37

1 Introduction

1.1 Introduction

This Outline Construction Waste Management Strategy has been prepared by EDF Energy Nuclear Generation Limited, hereafter referred to as 'EDF Energy (NGL)', in support of the proposed works associated with the Sizewell B Relocated Facilities (hereafter referred to as the 'Proposed Development'). This document details the scope of the construction work, the materials required, the waste types and quantities associated with the proposed activities, and the ways in which these wastes will be managed. The document also identifies the available capacity of local waste infrastructure and the effect the Proposed Development will have on the local waste infrastructure from the waste produced in line with simple level assessment guidance provided by Highways England in the Interim Advice Note (IAN) 153/11 Guidance on the Environmental Assessment of Material Resources¹.

Where waste is unavoidably generated, it will be dealt with in a way that follows the waste hierarchy (see Figure 1). Furthermore, the most sustainable transport options will be employed where practicable. Consequently, these principles form the basis of this Strategy. If waste is not managed properly during its handling, storage, transport, treatment and disposal, this can result in pollution of the environment and can impact upon human health. This document therefore aims to ensure that all waste management measures that are employed protect both the environment and people (see Section 2).

1.2 Waste Definition

Waste is defined as any substance or object which the holder discards, intends to discard or is required to discard². Waste can be sub-divided into three broad categories, namely inert, non-hazardous and hazardous, as described below:

- inert waste³ does not undergo any significant physical, chemical or biological transformations (e.g. brick, concrete and glass), does not dissolve, burn or otherwise physically or chemically react, biodegrade or its pollutant content and ecotoxicity of any leachate is insignificant and does not adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution, endanger the quality of surface water or groundwater or harm to human health;
- non-hazardous waste⁴ is essentially waste that can be reactive but does not display hazardous properties that would be considered to be harmful to human health and/or the environment (e.g. organic matter in household waste); and
- hazardous waste⁵ is waste that displays one or more hazardous properties as listed within Annex III of the Waste Framework Directive. These are properties that are considered to be harmful to human health and/or the environment (e.g. some remedial waste, batteries and fluorescent tubes).

¹ Highways Agency (2011) IAN 153/11 Guidance on the Environmental Assessment of Material Resources [online] available at: <http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian153.pdf> (last accessed January 2019).

² Article 3 (1) of the Waste Framework Directive (Directive 2008/98/EC)

³ Article 7 (4) of the Landfill (England and Wales) Regulations 2002 (as amended)

⁴ Article 7 (3) of the Waste Framework Directive (Directive 2008/98/EC) and Article 7 (3) of the Landfill (England and Wales) Regulations 2002 (as amended)

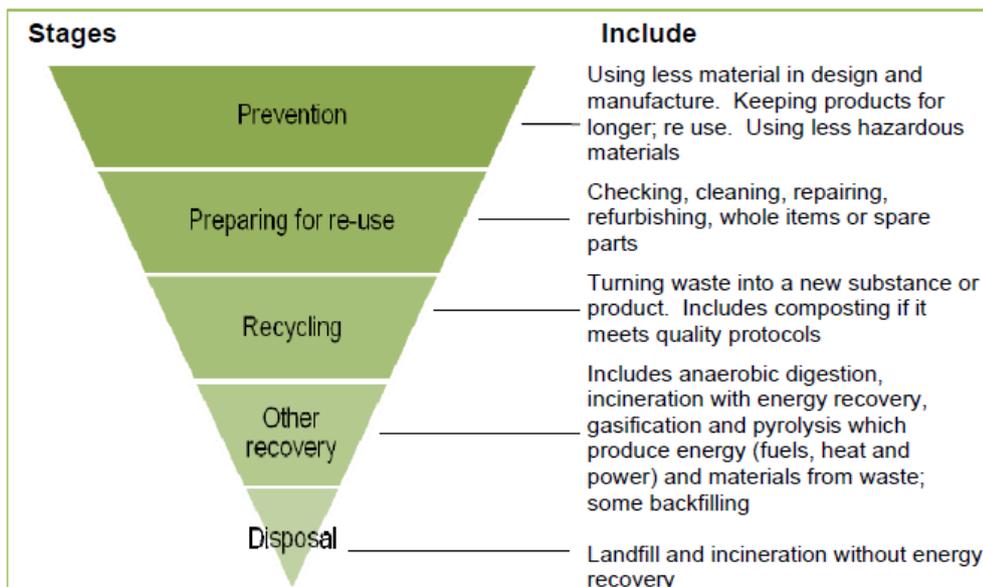
⁵ Article 4 of the Waste Framework Directive (Directive 2008/98/EC)

The waste hierarchy⁶ requires prevention of waste generation in the first instance and reducing, as far as possible, the volume requiring disposal once the waste has been produced. The waste hierarchy gives an order of preference for waste management options to minimise the volume for disposal, as illustrated in Figure 1.

In conjunction with the waste hierarchy, the proximity principle⁷ is considered throughout this document. The proximity principle, encourages the management of waste close to its place of generation, thus reducing the impacts of transporting waste over long distances and promoting management of the waste within its region of origin.

Through the consideration of the principles set out in this strategy document, it should be possible to achieve a level of waste re-use/disposal that is in line with current waste best practice. Notably, in terms of earthworks, construction and demolition related waste, EDF Energy (NGL) has set a target of re-using, recycling or recovering at least 90% of this (including soil but excluding hazardous waste). The remaining 10% would be sent to landfill (e.g. non-treatable hazardous wastes). This would include a target of re-using 100% of excavated clean soils, as far as reasonably practicable.

Figure 1: Waste hierarchy



Source: National Waste Management Plan for England 2013

1.3 Key Performance Indicators

EDF Energy's (NGL) waste management vision is 'to safely and consistently manage the production, treatment and disposal of waste in compliance with all relevant waste legislation, taking into account external and internal policy drivers, environmental and waste management principles, best practice and using innovative technologies where practicable and applicable to actively minimise impact on the environment and to protect workers and the public'. In terms of construction and demolition (C&D) related waste, EDF Energy (NGL) has set a target of re-using, recycling or recovering at least 90% of its earthworks, construction and demolition related waste (including soil but excluding hazardous waste). This would include a target of re-using, as far as practicable, 100% of excavated clean soils within the Proposed Development.

⁶ Article 7 (4) of the Landfill (England and Wales) Regulations 2002 (as amended)

⁷ Article 16 of the Waste Framework Directive (Directive 2008/98/EC)

Consequently, in order to reach this main target, the following objectives are set:

- prevent and reduce the volumes of waste produced through the application of the waste hierarchy;
- maximise re-use and recycling where possible;
- maximise re-use and recycling outside of the Proposed Development; and
- minimise the impact upon the existing waste management infrastructure.

The main ways to achieve these objectives are to:

- ensure construction methods follow best practice;
- reduce vehicle movements on the road through two-way trips and barges; and
- encourage re-use of material through a waste inventory.

EDF Energy (NGL) will ensure that the contractor complies with all sustainability objectives and will enforce mechanisms for monitoring and checking achievement, with an aim of annual improvement. Furthermore, all workers involved with the Proposed Development will be actively encouraged to recycle and this will be monitored accordingly.

1.4 Assessment Methodology

Pre-application discussions with Suffolk Coastal District Council (SCDC)⁸ proposed that an assessment would be required that would outline the local and regional waste management infrastructure and consider the anticipated waste arisings from the Proposed Development and the likely impacts resulting from demolition and construction waste. The assessment will take the form of a 'Simple Assessment', as aligned with, assessment levels in Design Manual for Roads and Bridges (DMRB) Volume 11 Section 2, Part 1, Chapter 2: Project Development and Environmental Impact Assessment Levels⁹. The Simple level assessment incorporated into this strategy has been undertaken in accordance with guidance provided by Highways England in the IAN 153/11 Guidance on the Environmental Assessment of Material Resources¹⁰, and has considered the following:

- The materials required for the Proposed Development;
- The anticipated waste arisings from the Proposed Development, the quantities and type (e.g. hazardous);
- The available capacity of local waste infrastructure;
- The effects on the local waste infrastructure from the waste produced;
- The results of any consultation; and,
- A conclusion about whether the local waste infrastructure has capacity to support the Proposed Development

1.4.1 Study Area

No study area definition is specified in DMRB Volume 11, Section 2, Part 4 and IAN 153/11. As a result, the study area used for this strategy has been determined through professional judgement by the influence of the Proposed Development, rather than through a set geographical location. Therefore, the study area encompasses the use of material resources and the potential waste arisings that would occur within the Proposed Development footprint.

⁸ On the 1st April 2019, Suffolk Coastal District Council merged with Waveney District Council to create East Suffolk Council. All pre application consultation and engagement which has taken place to date with the local planning authority was carried out with Suffolk Coastal District Council and therefore referred to as such within the documentation submitted with the planning application for the Proposed Development.

⁹ Highways Agency (2008) Volume 11 Section 2, Part 1 General Principles and Guidance of Environmental Impact Assessment [online] available at: <http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/section2/ha20108.pdf>

¹⁰ Highways Agency (2011) IAN 153/11 Guidance on the Environmental Assessment of Material Resources [online] available at: <http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian153.pdf> (last accessed January 2019).

During construction and demolition, the majority of waste will be generated within the immediate environment of the Site and any re-use, recycling or treatment will, wherever practicable, take place on-site. However, where reuse or recycling is not practicable on-site, wastes will need to be removed to external facilities elsewhere. There is potential that disposal to landfill of some waste materials may be required, either locally or further afield, depending on the nature of the waste. The assessment will, therefore, take into account waste facilities located within the County of Suffolk, which represent the closest waste facilities to the Proposed Development.

1.4.2 Significance

No standard significance criteria exist, and IAN 153/11 does not provide any guidance for assessing the significance of potential effects resulting from material resource use and waste generation. As the assessment has been undertaken to a Simple level only, professional judgement has therefore been used to provide an assessment of effects of the Proposed Development options, based on several factors, including:

- The availability of the material resources;
- The type of materials required, e.g. primary/virgin materials, manufactured materials, recycled materials;
- The type of waste generated, e.g. inert, hazardous;
- The availability of suitable facilities within close proximity to the Proposed Development and options to treat the waste generated; and,
- Compatibility of the Best Practicable Environmental Option (BPEO) for the waste within the context of the waste hierarchy, i.e. whether generation of the waste can be minimised, the waste can be recycled, landfilled etc.

1.4.3 Assumptions and Limitations

The document will not assess the operation activities undertaken at the Site including the management of municipal waste as these operations will be incorporated into the existing Sizewell 'B' Power Station Local Instruction for the Management of Hazardous and Non-Hazardous Waste¹¹.

IAN 153/11 'Guidance on the Environmental Assessment of Material Resources' state that it is not possible to provide detailed guidance on some aspects of the assessment process, namely the significance of effect. It recognises that permanent effects are likely to be significant and so the Proposed Development should, as a minimum, aim to identify these. Similarly, only estimates of quantities of materials to be used and waste to be produced can be made and provide the basis for the assessment of magnitude of change.

Additionally, the assessment has not considered the effects associated with the off-site extraction of raw materials used for the off-site manufacture of products. These stages of the products' or materials' life-cycles are outside of the boundaries of the assessment due to the range of unknown variables associated with the processes involved. It is also likely that these processes have already been subject to an environmental assessment.

¹¹ Sizewell 'B' Power Station Local Instruction Management of Hazardous and Non-Hazardous Waste (Jan 2018) SZB/L1/016/002V

2 Waste Legislation and Policy

This section outlines the key international, UK, national, regional, local wastes policies, legislation and guidance to which this waste strategy will adhere to, as outlined below (the key policies and legislation have been summarised in Appendix A):

2.1 Legislative Considerations

- Waste Framework Directive (2008/98/EC)¹²
- Landfill Directive (1999/31/EC)¹³
- Hazardous Waste Directive (91/689/EEC)¹⁴

2.2 National Policy and Legislation

- The Environmental Protection Act 1990¹⁵
- The Waste (England and Wales) Regulations, 2011 (2011/988)¹⁶
- Environmental Permitting (England and Wales) Regulations, 2016 (2016/1154)¹⁷
- Hazardous Waste (England and Wales) Regulations, 2005
- Waste Electrical and Electronic Equipment (WEEE) Regulations 2013¹⁸
- Waste Batteries and Accumulators Regulations, 2009 (SI 2009/1890)¹⁹
- Control of Pollution (Oil Storage) (England) Regulations, 2001 (SI 2005/2954)²⁰

2.3 National Policies and Strategies

- National Planning Policy Framework (NPPF)
- National Planning Policy for Waste, 2014²¹
- National Waste Management Plan for England, 2013²²
- Government Construction Strategy, 2016-2020²³

¹² European Commission – Waste Framework Directive (2008/98/EC). Available online at <http://ec.europa.eu/environment/waste/framework/>

¹³ European Commission – Landfill Directive (1999/31/EC). Available online at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A31999L0031>

¹⁴ European Commission – Hazardous Waste Directive 1991/689/EC). Available online at: http://ec.europa.eu/environment/waste/hazardous_index.htm

¹⁵ Environmental Protection Act, 1990. Available online at <http://www.legislation.gov.uk/ukpga/1990/43/contents>

¹⁶ UK Government - Waste (England and Wales) Regulations 2011, as amended. Available online at <http://www.legislation.gov.uk/ukdsi/2011/9780111506462/contents>

¹⁷ UK Government - The Environmental Permitting (England and Wales) Regulations 2016. Available online at <https://www.legislation.gov.uk/ukdsi/2016/1154/contents/made>

¹⁸ UK Government - Waste Electric and Electronic Equipment (WEEE) Regulations 2013. Available online at <http://www.legislation.gov.uk/ukdsi/2013/3113/contents/made>

¹⁹ UK Government - Waste Batteries and Accumulators Regulations 2009 (SI 2009/1890). Available online at <http://www.legislation.gov.uk/ukdsi/2009/890/contents/made>

²⁰ UK Government - Control of Pollution (Oil Storage) (England) Regulations 2001 (SI 2005/2954). Available online at <http://www.legislation.gov.uk/ukdsi/2001/2954/contents/made>

²¹ Department for Communities and Local Government (2014). National Planning Policy Framework for Waste 2014. Available online at <https://www.gov.uk/government/publications/national-planning-policy-for-waste>

²² Department for Environment, Food & Rural Affairs – National Waste Management Plan for England, 2013. Available online at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/265810/pb14100-waste-management-plan-20131213.pdf

²³ The Infrastructure and Projects Authority, March 2016 – Government Construction Strategy 2016-2020. Available online at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/510354/Government_Construction_Strategy_2016-20.pdf

- Construction 2025 – Industrial Strategy for Construction – Government and Industry in Partnership, 2013²⁴

2.4 Regional Policy

- Suffolk Waste Core Strategy, 2011²⁵
- Suffolk Minerals and Waste Development Framework
- Suffolk Minerals and Waste Development Scheme, 2017
- Suffolk Minerals and Waste Local Plan
- Suffolk Coastal Local Plan Review
- Suffolk Coastal District Local Plan - Core Strategy & Development Management Policies, 2013²⁶
- Suffolk Coastal Local Development Scheme, 2015

2.5 Standards and Industry Guidance

- Contaminated Land Applications in Real Environments (CL:AIRE)
- DTI guidance for Construction Contractors and Clients

²⁴ UK Government, July 2013 - Construction 2025 – Industrial Strategy for Construction – Government and Industry in Partnership, 2013. Available online at https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/210099/bis-13-955-construction-2025-industrial-strategy.pdf

²⁵ Suffolk County Council, 2011 - Suffolk Waste Core Strategy. Available online at <https://www.suffolk.gov.uk/planning-waste-and-environment/minerals-and-waste-policy/waste-core-strategy/>

²⁶ Suffolk Coastal District Local Plan - Core Strategy & Development Management Policies, 2013. Available online at <http://www.eastsuffolk.gov.uk/assets/Planning/Suffolk-Coastal-Local-Plan/Core-Strategy-and-DMP/SCDC-Local-Plan-July-2013.pdf>

3 The Proposed Development

3.1 Proposed Works

The activities required to undertake the works are identified in the **ES Volume I, Chapter 3: Proposed Development**. Figure 2 displays the indicative layout of the Proposed Development. The relocation of the existing facilities will be undertaken in two distinct phases as presented in Table 1 and Table 2:

Table 1: Construction and demolition works - Phase 1

Action	
1	Coronation Wood clearance
2	Construct Western Access Road, Training Centre, Replacement Car Park and Laydown Area
3	Construct Outage Store (in parallel with above)
4	Relocate Visitor Centre to exiting Technical Training Centre (as a temporary measure)
5	Construct Outage Parking and Access (in Pillbox Field)
6	Demolish redundant facilities (Visitor Centre, Operations Training Building, Outage Store and Northern Compound)

Table 2: Construction and demolition works - Phase 2

Action	
1	Construct temporary Site Access Mods (as enabling works to the Outline Development Zone)
2	Establish Outline Development Zone working areas
3	Construct administration, storage, welfare and canteen facilities (design to be brought forward at a later date)
4	Construct Visitor Centre (in parallel with above)
5	Demolish redundant facilities (Technical Training Centre, Projects Office, Outage Office, Portacabin City 2 and Base Area Facility)

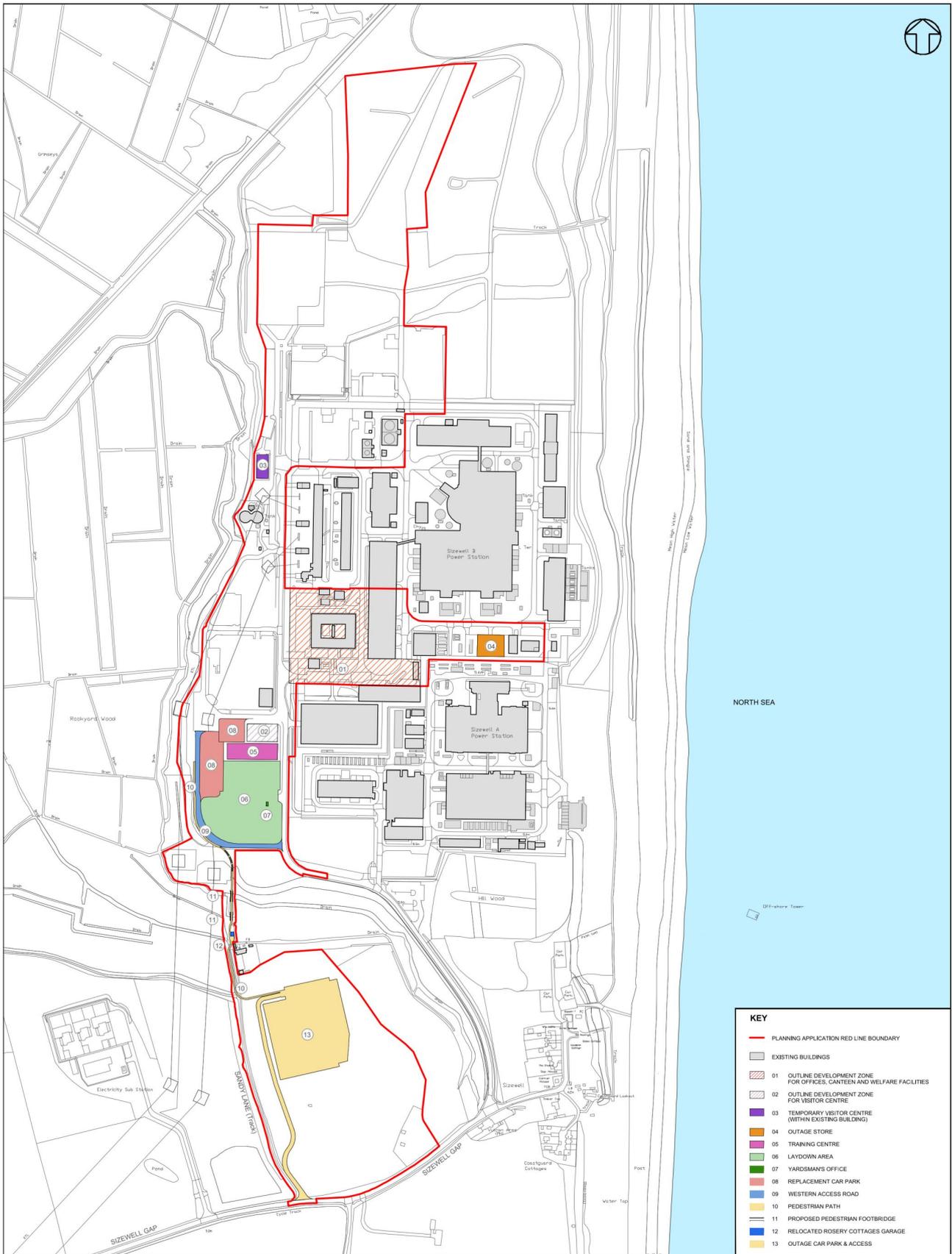
3.2 Timescales

It is anticipated that the construction and demolition associated with the Proposed Development would take place over an estimated 53 month period, on a phased basis. The duration of the site works reflects the sequencing of the construction, relocation and demolition activities required. The likely years of construction are currently subject to change. For the purpose of this assessment, in particular the assessment of local and regional waste facilities, the most likely timeframe of between 2019 and 2024 will be used. Table 3 identifies the anticipated timescales of the works.

Table 3: Construction and demolition works - Timescales

Action	Date
Phase 1 - Start of works on Site	Q4 Year 1
Phase 1 - Construction of new phase 1 Sizewell B power station buildings	Q2 Year 2 – Q2 Year 3
Phase 1 - Demolition of old phase 1 Sizewell B power station buildings	Q2 Year 3 – Q4 Year 3
Phase 1 - Site cleared and ready for proposed Sizewell C power station enabling works	Q4 Year 3
Phase 2 - Construction of new phase 2 Sizewell B power station buildings	Q3 Year 4 – Q3 Year 5
Phase 2 - Demolition of old phase 2 Sizewell B power station buildings	Q3 Year 5 – Q1 Year 6

Figure 2: Layout of Proposed Development



KEY

- PLANNING APPLICATION RED LINE BOUNDARY
- ▭ EXISTING BUILDINGS
- ▨ 01 OUTLINE DEVELOPMENT ZONE FOR OFFICES, CANTEN AND WELFARE FACILITIES
- ▤ 02 OUTLINE DEVELOPMENT ZONE FOR VISITOR CENTRE
- ▭ 03 TEMPORARY VISITOR CENTRE (WITHIN EXISTING BUILDING)
- ▭ 04 OUTAGE STORE
- ▭ 05 TRAINING CENTRE
- ▭ 06 LAYDOWN AREA
- ▭ 07 YARDSMAN'S OFFICE
- ▭ 08 REPLACEMENT CAR PARK
- ▭ 09 WESTERN ACCESS ROAD
- ▭ 10 PEDESTRIAN PATH
- ▭ 11 PROPOSED PEDESTRIAN FOOTBRIDGE
- ▭ 12 RELOCATED ROSERY COTTAGES GARAGE
- ▭ 13 OUTAGE CAR PARK & ACCESS

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DOCUMENT SIZEWELL B RELOCATED FACILITIES	
DRAWING NO. S2C-RP9000-XX-000-DRW-100002 DATE APR 2019	REVISION 01 SCALE DRAWN BY CHECKED BY

DRAWING TITLE FIGURE 2 PROPOSED SITE LAYOUT PLAN	
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Note: Figure adapted for use in the Outline Construction Waste Management Strategy	
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NUCLEAR GENERATION LIMITED

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4 Baseline of Local and Regional Waste Facilities

4.1 Introduction

Due to the extent of and constraints at the Site (e.g. lack of available space), it will not be practical to treat waste on-site. As a result, it is proposed to use the existing waste infrastructure within the surrounding and wider area of Suffolk to re-use, recycle and recover the waste produced.

This section assesses the existing waste infrastructure within the vicinity of the Proposed Development, and its suitability for processing waste produced as a result of the Proposed Development. This takes into account the distances of the various waste facilities (e.g. proximity principle), the waste types that they accept, and the volumes (including waste peaks) as well as, identifying the most competitive and sustainable solution for the preferred facilities for disposal. Any remaining waste would be disposed of at landfill, however, it is EDF Energy's (NGL) policy that this would not exceed more than 10% of the total earthworks, construction and demolition waste produced.

Appendix B identifies the facilities within 100km of the Site and highlights the facility types and license capacities. This list is a guide however, and the appointed waste contractor for the Site will contact the relevant Treatment/Transfer Facilities or Environment Agency directly to determine the most appropriate waste management facility to handle the waste material being produced.

4.2 Local Facilities

Given the variety of waste types likely to be generated, a broad range of types of local waste facilities has been considered. These facilities have been identified as providing treatment, disposal, or management of the wastes produced. This information includes the following types of facilities:

- Inert Landfills
- Non-Hazardous Landfills
- Energy Recovery Incinerators
- Composting Facilities (Aerobic)
- Recycling Centres
- Materials Reclamation Facilities
- Waste Transfer Facilities
- Secondary Aggregate Facilities
- Metal Recycling Facilities
- Quarries

The documents and databases that have been utilised for the categorisation of relevant local waste management sites include:

- Suffolk Waste Core Strategy, March 2011
- Suffolk Mineral Strategy, September 2008
- Suffolk County Council's Minerals and Waste Local Plan – Suffolk Waste Study, April 2018
- Suffolk County Council's Minerals and Waste Local Plan – Suffolk Waste Study, September 2017
- Environment Agency Public Register
- Suffolk Waste Sustainability Appraisal
- Joint Municipal Waste Management Strategy for Suffolk 2003 – 2020
- Joint Municipal Waste Management Strategy for Suffolk 2003 – 2020 Addendum 2013
- Suffolk Waste Partnership Annual Report of the Joint Municipal Waste Management Strategy
- Environmental Agency Landfill Database Map

- Suffolk County Council Online Planning Application Database
- Suffolk Waste Local Plan Baseline Reports

4.2.1 Material Re-Use

At the Site, the majority of excavated materials created to facilitate construction would be retained on-site for re-use as backfill and landscaping within the boundary of the Outline Development Zone. Any remaining soil will be stockpiled within the Outline Development Zone on the basis that it can be used by future works at the Sizewell power station complex, namely the proposed Sizewell C power station. If the Sizewell C development was not to go ahead the soil would be used increase the ground level within Field 2 up to 0.8m from existing levels. Consequently, this reuse of excavated material significantly reduces the amount of material to be classified as waste, which would require removal from site for re-use, recycling, recovery or disposal.

The appointed waste contractor will consider the use of buy back schemes for all suitable materials, generally in their original manufactured state (e.g. scrap metal, aggregate). The appointed waste contractor will also consider selling materials of value, such as pipes and steel and fill materials directly to the local market. This would need to be done in line with the relevant regulations, including the Waste and Resources Action Programme (WRAP) Quality Protocols. Additionally, the use of National Industrial Symbiosis Programme (NISP) could assist in the identification of companies/sites that may require large quantities of C&D wastes, for example, large scale housing developments. By selling the material locally, this would have the advantage of reducing vehicle movements on roads further afield.

4.2.2 Recycling

In Suffolk, there are several Materials Recycling Facilities (MRFs) /waste transfer stations. An assessment of operational MRFs and waste transfer stations within Suffolk that lie within 100km of the Site has been undertaken, primarily using information provided in Suffolk County Council (SCC)'s Minerals and Waste Local Plan – Suffolk Waste Study, April 2018 and the Environment Agency Public Register, as well as documents listed in Section 4.2. The results of the assessment are presented in Appendix B Table B.1 in order of proximity to the Site (MRFs and waste transfer stations with known capacities less than 4,999 tonnes per annum (tpa) have been excluded from consideration). Composting facilities with capacity to accept C&D waste are listed in Appendix B Table B.2.

The 2018 Suffolk Waste Study Final Report provides baseline estimates for C&D waste arisings across Suffolk of approximately 488,000 tonnes in 2019 decreasing to 442,000 tonnes in 2024.

4.2.2.1 Inert waste

The 2018 Suffolk Waste Study highlights the following facilities in Appendix B Table B.3, ordered in terms of proximity to the Proposed Development, as being able to accept inert waste and includes their throughputs for 2013-2015, as indicated in the Waste Data Interrogator.

4.2.2.2 Hazardous Waste

The Suffolk Waste Study 2018 provides baseline estimates for hazardous waste arisings across Suffolk of approximately 41,269 tonnes in 2019 decreasing to 36,422 tonnes in 2024. The total hazardous waste arisings from the construction phase is unknown at this point but is considered within this assessment given the potential for discovering unknown sources of hazardous waste. A list of waste facilities in Suffolk and neighbouring counties that accept relevant hazardous wastes has been identified and is shown in Appendix B Table B.4, ordered in terms of proximity. The table contains throughputs for 2016 as obtained from the Waste Data Interrogator.

The hazardous waste facilities in Suffolk of most interest to the Proposed Development are the following:

- Hollywell Waste Oil Facility, which has a licenced capacity of approximately 75,000tpa and is situated approximately 43km away from the Site. The site had a throughput of 47,334, 22,870 and 3,515 tonnes in 2014, 2015 and 2016 respectively;
- Folly Farm Waste Management Facility, a hazardous landfill operated by Shotley Holdings Limited (Ltd) which accepts hazardous construction materials and had a throughput of approximately 7,650 tonnes in 2016.

4.2.3 Other Recovery

4.2.3.1 Energy from Waste (EfW)

The closest EfW facility able to accept significant volumes of waste is located opposite to Masons Landfill, approximately 45km away from the Site. It was opened in December 2014 by Suez Environment and has the capacity to treat 269,000 tonnes of residual waste per year. It should be noted however, that it is unlikely that waste produced from the Proposed Development will have calorific values great enough to make incineration worthwhile from an energy recovery perspective.

4.2.4 Disposal

4.2.4.1 Landfill

A list of landfills in Suffolk that are suitable have been identified and are shown in Appendix B Table B.5, The closest landfills with sufficient capacity remaining at end 2015 according to the Environment Agency and which accept C&D waste are Masons Landfill and Shrublands Quarry, both of which lie approximately 45km road distance from the Site. Masons Landfill and Shrublands Quarry are operated by Viridor and Brett Aggregates respectively and had a remaining capacity at the end 2015 of approximately 3.8 million m³ and 0.55 million m³.

Disposal is considered to be the waste management option of last resort, as reflected in EDF Energy's (NGL) Performance Indicators. Wastes which are most likely to be sent to landfill are soils that are grossly contaminated and not suitable for treatment, and a proportion of general wastes. Based on the proximity principle and permitted tonnage, Masons Landfill is considered to be the most suitable landfill for disposal of wastes from the Proposed Development.

4.3 Total Capacity

The total indicative permitted capacity in Suffolk of different waste facilities located within 100km of the Site is shown in Table 4. The throughputs for the year 2016 are provided for relevant hazardous waste facilities, as obtained from the Waste Data Interrogator, while hazardous waste facilities located in neighbouring counties are also included.

4.4 Regional Facilities

It is considered that there is sufficient capacity in Suffolk to handle most of the waste streams generated by the Proposed Development. However, there are currently no contaminated soil treatment facilities within Suffolk and therefore, if encountered, this waste stream may have to be delivered to specialised sites located in surrounding regions. A list of suitable sites is provided in Appendix B Table B.6 ordered in proximity to the site. Two Biogenie facilities are considered to be the most desirable options treatment of contaminated soils, in particular the Westmill Soil Treatment Facility, which lies approximately 152km from the Site.

Table 4: Summary of available facilities, site types and permitted capacities within 100km of Sizewell B power station

Type of facility	Number of Facilities					Permitted capacity (tonnes)				
	Within 10km	Within 25km	Within 50km	Within 75km	Within 100km	Within 10km	Within 25km	Within 50km	Within 75km	Within 100km
Landfill	0	0	2	5	5	0	0	4,368,892	7,224,933	7,224,933
Non-Hazardous Landfill with Stable Non-Reactive Hazardous Waste cell	0	0	1	2	2	0	0	3,821,952	4,423,445	4,423,445
Inert Landfill	0	0	1	3	3	0	0	546,940	2,801,488	2,801,488
Transfer Stations	2	3	22	32	46	99,998	174,997	1,422,483	1,752,477	2,252,722
A9: Special Waste Transfer Station	0	0	2	5	5	0	0	224,999	279,998	279,998
A11: Household, Commercial & Industrial Waste Transfer Station	1	1	11	15	25	24,999	24,999	417,491	562,787	879,986
A14: Transfer Station taking Non-Biodegradable Wastes	0	0	1	1	1	0	0	5,000	5,000	5,000
S0801 No 1: 75kte HCl Waste Transfer Station	1	1	1	1	2	74,999	74,999	74,999	74,999	149,998
S0803 No 3: 75kte HCl Waste Transfer Station + treatment	0	0	1	2	2	0	0	74,999	79,998	79,998
S0807 No 7: 75kte HCl Waste Transfer Station + treatment + asbestos	0	0	0	1	2	0	0	0	50,000	54,999
S0811 No 11: Inert & excavation Waste Transfer Station + treatment	0	1	5	6	8	0	74,999	374,995	449,995	552,743
S0906 No 6: Inert & excavation Waste Transfer Station with treatment	0	0	1	1	1	0	0	250,000	250,000	250,000
Metal Recycling Facilities	0	2	10	12	15	0	149,998	509,991	531,991	636,990
SR2010 No12: Treatment of waste to produce soil <75,000 tpa	0	2	6	6	6	0	149,998	449,994	449,994	449,994
A20: Metal Recycling Site (mixed MRS's)	0	0	3	5	8	0	0	34,998	56,998	161,997
S1514 No 14: 75kte Metal Recycling Site	0	0	1	1	1	0	0	24,999	24,999	24,999
Biological treatment	0	4	6	7	10	0	101,000	175,999	244,499	354,498
A22: Composting Facility	0	2	4	4	7	0	56,000	130,999	130,999	240,998
Use in construction	0	0	1	1	1	0	0	49,999	49,999	49,999
SR2010 No7: Use of waste in construction <50,000 tpa	0	0	1	1	1	0	0	49,999	49,999	49,999
Use/recovery of Inert waste	0	3	11	13	15	0	114,997	797,491	1,047,488	1,175,392
S1539 No 39: Use of waste in a deposit for recovery op	0	0	0	1	1	0	0	0	174,998	174,998
A25: Deposit of waste to land as a recovery operation	0	1	4	4	5	0	99,999	272,498	272,498	325,403
SR2010 No12: Treatment of waste to produce soil <75,000 tpa	0	2	7	8	9	0	14,998	524,993	599,992	674,991
Material recycling	0	0	2	2	4	0	0	224,999	224,999	374,998
A15: Material Recycling Treatment Facility	0	0	2	2	4	0	0	224,999	224,999	374,998
Physical/Chemical treatment	0	0	6	9	11	0	0	724,996	734,994	804,994
A16: Physical Treatment Facility	0	0	4	6	8	0	0	574,998	579,997	649,997
A17: Physico-Chemical Treatment Facility	0	0	2	2	2	0	0	149,998	149,998	149,998
A21: Chemical Treatment Facility	0	0	0	1	1	0	0	0	4,999	4,999
Incineration	0	0	2	2	2	0	0	273,999	273,999	273,999
Hazardous waste facilities	0	2	20	40	63	0	424	22,880	27,027	63,635

5 Design and Mitigation Measures

5.1 Waste Management Arrangements

Conventional waste produced during the operation of the Proposed Development will be managed in line with the existing EDF Energy (NGL) procedures for Sizewell B. Sizewell B power station holds three waste exemption registrations (exemption numbers EPR/ZF609WF/A001, WEX080535 and WEX141408). These exceptions cover a range of waste management activities including the secure storage, treatment of various wastes, reuse of specific wastes and use of wastes to improve or maintain soil quality.

There will be an EDF Energy (NGL) appointed site waste co-ordinator for all non-radioactive wastes, including hazardous wastes. They will be responsible for all waste collection and storage on site and arranging and managing all transfers off-site, for recovery, reuse or disposal.

Site Waste Management Plan (SWMP) will be produced by the appointed Contractor/s, prior to the start of construction in line with Department for Trade and Industry (DTI) guidance for Construction Contractors and Clients. The SWMP will ensure that unavoidable construction waste is identified and able to be managed in accordance with the waste hierarchy and other relevant legislative requirements. The SWMP will also be used to derive the management options that would achieve the highest practicable performance levels within the hierarchy. Although a contractor will prepare their own SWMP and carry out waste management, EDF Energy (NGL), under the Duty of Care (Section 34 of the Environmental Protection Act 1990 and the Waste (England and Wales) Regulations 2011), would remain responsible for its waste until its ultimate recovery or disposal.

Additionally, a Materials Management Plan (MMP) should be produced by the contractor for the earthworks (including the potential increase in ground level within Field 2). The management plan should include on-site testing and assessment of materials, a verification plan and methodology to identify what, if any, remedial actions will be undertaken and how such actions will be validated and recorded if unexpected contamination is encountered during the work and a verification plan to record the placement of materials at the Site.

The preparation of a SWMP's and MMP's will ensure that any adverse effects associated with material resource use and waste generation are managed.

5.2 Identification and Sorting

Waste will be sorted in accordance with the waste hierarchy (Figure 1). In general, waste will be segregated into as many separate streams as practicable at the Site. Hazardous waste must be segregated from non-hazardous waste and different types of hazardous waste will be separated.

It is proposed that earthworks waste is stored in stockpiles in a spoil management zone (Field 2 - Figure 3) on site before being re-used on-site. Storage and handling of topsoil for reuse on site will comply with the relevant standard BS3882:2015 Specification for Topsoil, any exemptions from standards will be secured prior to removal, storage or re-use.

Waste that is generated from the C&D phases will be deposited in stockpiles close to the point of generation, before being transported by large dump trucks for temporary storage. Recyclable waste will be separated out where practical. This applies to steelwork, steel cladding, timber, concrete and brickwork.

Concrete and brickwork will be crushed on site prior to moving where quantities justify the introduction of an on-site crusher. If appropriate, the arisings from the crushed concrete and brickwork will be reused as ground fill (however, current figures assume that all debris will be removed from the Site).

Timber from the clearance of Coronation Wood Development Area will be removed from the Site, although opportunities for re-use on other estate works will be sought. Roots and smaller branches, twigs and undergrowth will be mulched prior to removal.

Existing furniture and fittings will be removed prior to demolition and reused wherever possible (however, for this exercise it is assumed that most will be removed from the Site).

5.3 Storage

As far as possible, the Site will store wastes in a centralised and secure collection area. A member of the team responsible for waste management will supervise transfers of waste into the area. It is proposed that 40 cubic yard roll-on roll-off (RoRo) containers/skips are used for the storage of all non-compactable waste streams, while compaction containers are used for the storage of compactable waste streams such as packaging and insulation. All containers will be fitted with secure coverings, such as ones with a rolling roof system.

Hazardous waste will also be separated and stored safely on-site if encountered. Hazardous wastes will be stored separately from non-hazardous waste, in a secure, weatherproof area. The waste management team will maintain an inventory of hazardous waste in storage.

In general, liquid waste will be stored in a tank that is bunded or drained to a sealed pit capable of containing 110% of the contents of the storage containers. Drums of liquid waste may be stored in secondary containment with a capacity of at least 25% of the drum or aggregate. Drums or other containers must not be filled to the brim with liquids; an ullage space of approximately 5% is the minimum requirement for safe storage and transport.

All waste containers will be clearly and correctly labelled at all times and follow the company standard format, in order to prevent any escape, in accordance with the Duty of Care and be correctly segregated. In particular, different types of hazardous waste will be collected separately. Additionally, if waste is not immediately put in a designated waste container, it will be clearly labelled with its contents and origin.

5.4 Transfers Offsite

A member of Sizewell B power station facilities will supervise transfers of waste to the waste carrier or waste contractor and complete and sign a transfer or consignment note. Anyone removing, treating, storing or disposing of waste must have a carrier registration and Environmental Permit (in line with Environmental Permitting (England and Wales) Regulations 2016). Hazardous waste would be removed from Site by a specialist contractor. Additionally, tanks containing hydrocarbon fuels and other chemicals would have their contents emptied prior to their removal by a specialist contractor.

5.5 Mitigation Measures

Table 5 outlines specific activities and the likely effects associated with these activities, followed by the mitigation measures that should be implemented to reduce these effects.

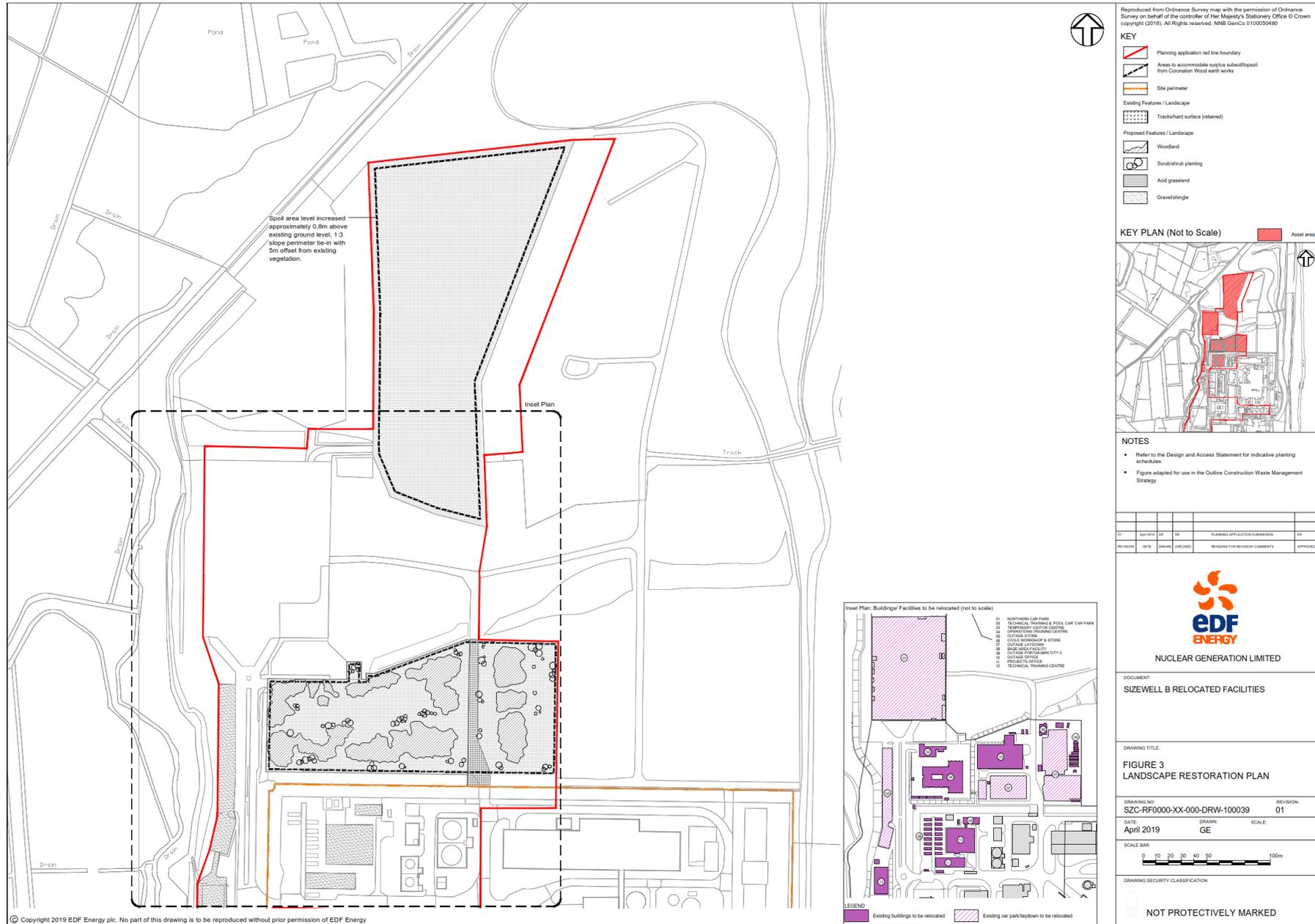
Table 5: Mitigation measures

Proposed Development activity	Potential impacts associated with material resource use / waste management	Description of mitigation measures	How the measures will be implemented, measured and monitored
Site remediation / preparation (excavation)	Generation of green waste from site clearance.	Any vegetation removed would be chipped and used for landscaping or sent to an organic waste processing site if on-site reuse is not possible.	This strategy and MMPs would be implemented across the Site for the different work aspects. This will ensure that material re-use is promoted, monitored and recorded resulting in the reduction of waste taken off-site for disposal. Waste on site would be appropriately stored/stockpiled in accordance with best practice to ensure that waste stays in a suitable condition to be reused onsite. Appropriate construction practices, in accordance with best practice measures, would be implemented to reduce the risk of mobilisation of contaminants from contaminated waste soils. Contractor SWMPs would detail targets for recycling and waste minimisation that must be adhered to onsite.
	Generation of soils from site clearance.	Storage and handling of topsoil for reuse on site will comply with the relevant standard BS3882:2015 Specification for Topsoil, any exemptions from standards will be secured prior to removal, storage or re-use; Earthworks would be carried out under a MMP in accordance with industry adopted guidance "The Definition of Waste: Development Industry Code of Practice _ Version 2" published by CL:AIRE (March 2011), where relevant; Excavated materials created to facilitate construction would be retained on-site for re-use as backfill and landscaping.	
	Generation of contaminated soils from clearance of contaminated land.	Contaminated soil arisings classed as hazardous, would be identified, kept separate from inert or non-hazardous construction waste materials and disposed of in accordance with the Hazardous Waste Regulations 2005, as amended.	
Demolition	Sending waste to landfill results in the reduction in the remaining available landfill capacity and unsustainable.	Sending waste generated on site to landfill would be a last resort option, consideration would be given for re-use, recycling and other recovery methods before disposal to landfill is considered; The re-use of waste on-site would be prioritised to lower the requirement for landfilling, as well as reducing the use of primary materials and the sourcing of new materials. This would be implemented through appropriate storage of waste on-site prior to its removal; Any waste that cannot be re-used on-site would be sent off-site for recycling and/or re-use; Sending waste to non-landfill waste management facilities would be prioritised over landfilling which would utilise the available waste management capacity of the non-landfill waste management facilities, whilst lowering the requirement for landfilling. Non-landfill waste management facilities would hold appropriate permits and be located as close to the Site as possible to reduce impacts from transportation; and, If landfill is required, then landfills used would be prioritised on the basis of suitability to take the specific waste and minimise transportation distances.	Contractor SWMPs would detail targets for recycling and waste minimisation that must be adhered to. Contractor SWMPs would be used to measure and monitor the waste taken off-site. Appropriate non-landfill waste management facilities would be identified and detailed in the contractor SWMPs.

Proposed Development activity	Potential impacts associated with material resource use / waste management	Description of mitigation measures	How the measures will be implemented, measured and monitored
Construction	Generation of waste from imported materials	<p>Any packaging waste should be source segregated for recycling or returned to suppliers. If feasible pre-fabricated material should be used and imported to the Site. In certain circumstances this will reduce the amount of packaging required;</p> <p>Materials should be ordered so that the timing of the delivery, the quantity delivered and the storage is not conducive to the creation of unnecessary waste;</p> <p>Consideration will be given to the procurement of materials to minimise over-ordering, thereby reducing waste. Careful procurement will also reduce waste arisings associated with future removal/reinstatement of the facilities; and</p> <p>Final fit out of the facilities and other associated infrastructure should be done in conjunction with the client and not to an assumed design specification in order to minimise wastage of materials such as paints and cables etc;</p> <p>Performance against the Waste Hierarchy is monitored on a regular basis in line with the requirements of the EDF Energy's (NGL) Integrated Management System.</p>	<p>This strategy and MMPs would be implemented across the Site which would ensure that material re-use is promoted, monitored and recorded resulting in the reduction of waste sent for disposal to landfill.</p> <p>Contractor SWMPs would detail targets for recycling and waste minimisation that must be adhered to.</p> <p>Contractor SWMPs would be used to measure and monitor the waste taken off-site.</p> <p>Appropriate non-landfill waste management facilities would be identified and detailed in the contractor SWMPs.</p> <p>Contractor SWMPs would detail the closest waste management facilities.</p> <p>Materials and waste audits would be undertaken.</p>
	Environmental pollution due to poor storage	<p>Materials will not be stored within 10m, wherever feasible, of any identified watercourses, surface water drains, woodland or hedgerows, or immediately upslope of the Sizewell Marshes SSSI;</p>	

Source: Table adapted from Table D in Annex 3 of IAN 152/11.

Figure 3: Landscape Restoration Plan



6 Assessment of Effects

6.1 Types and Quantities of Materials and Effects

Table 5 reports the principle material quantities required for the construction elements of the Proposed Development. As the scheme is at an early stage of design development, the net volume of materials has been calculated pro-rata existing on-site buildings of a similar construction. Forms of construction for buildings have been assumed to be steel frame with composite cladding, concrete upper floors and steel clad roofs. Internal walls and partitions have been assumed to be a combination of plastered blockwork and removable non-loading bearing partitions on a studwork frame. Measurements for furniture have been based upon the drawings and calculated on a typical volume per item with an allowance for packaging. Tables 6 and 7 identify the anticipated cut/fill material volumes (m³) associated with Coronation Wood and Pillbox Field (see Figure 3 for locations).

Table 5: Summary of construction material resources required

Proposed Development activity	Material resources required for the Proposed Development	Quantities of material resources required	Additional information on material resources
Phase 1			
Coronation Wood Development Area Construction: Construct Western Access Road, separating construction traffic from main access road once Coronation Wood is cleared. Construct drainage channel to the west of road. Level rest of Coronation Wood Development Area once western access road is constructed. Temporary material stockpiling at the north of the Site. Construction of the Training Centre, Replacement Car Park and Laydown Area, along with the external infrastructure, drainage and landscaping, once the Coronation Wood Development Area is levelled.	Hardcore paving	/ 17600m ³	Waste from construction would be reused onsite wherever possible to reduce the use of virgin material. Appropriate segregation and storage of materials on site would be implemented to ensure materials do not spoil or get damaged. Where primary materials are required, these would be sourced locally where possible.
	Concrete	7000m ³	
	Reinforcement	35t	
	Steelworks	100t	
Construct Outage Store: Install temporary sheet piles (up to a maximum of 20m deep). Excavate basement below groundwater table. Dewater excavated area. Pour concrete base and erect building structure once basement constructed. Fit-out and install contents.	Hardcore paving	/ 600m ³	
	Concrete	1000m ³	
	Reinforcement	130t	
	Steelworks	700t	
Temporary Visitor Centre: Refurbishment of technical training centre and relocate of the contents of existing Sizewell B power station visitor centre. Level area proposed for the new Visitor Centre.	N/A	N/A	No significant civils works are anticipated.

<p>Outage Car Park and Access: Remove 150mm top soil strip across all areas of Pillbox Field to be disturbed. A cut and fill balance established across development, to minimise requirement for import / export of material. Locate construction compound. Construct two pedestrian access bridges using minimum working width as possible to minimise SSSI intrusion. The footbridges' screw piles to a maximum depth of 5m.</p>	Hardcore paving / 7500m ³	Waste from construction would be reused onsite wherever possible to reduce the use of virgin material. Appropriate segregation and storage of materials on site would be implemented to ensure materials do not spoil or get damaged. Where primary materials are required, these would be sourced locally where possible.
<p>Phase 2</p>		
<p>Temporary site modifications: Modify existing Sizewell B power station site access to provide a suitable working area for construction within the Outline Development Zone.</p>	Hardcore Paving / 280m ³ Concrete 185m ³ Reinforcement 2t	Waste from construction would be reused onsite wherever possible to reduce the use of virgin material. Appropriate segregation and storage of materials on site would be implemented to ensure materials do not spoil or get damaged. Where primary materials are required, these would be sourced locally where possible.
<p>Outline Development Zone: Divert/protect services (notably 11 kV cables). Construct bases. Erect steel superstructures. Install cladding. Install building services (including roof plant).</p>	Hardcore paving / 1690m ³ Concrete 4200m ³ Reinforcement 420t Steelworks 2500t	Waste from construction would be reused onsite wherever possible to reduce the use of virgin material. Appropriate segregation and storage of materials on site would be implemented to ensure materials do not spoil or get damaged. Where primary materials are required, these would be sourced locally where possible.
<p>Visitors Centre: Construct base. Erect steel superstructure. Install cladding. Install building services.</p>	Hardcore paving / 440m ³ Concrete 2000m ³ Reinforcement 190t Steelworks 430t	Waste from construction would be reused onsite wherever possible to reduce the use of virgin material. Appropriate segregation and storage of materials on site would be implemented to ensure materials do not spoil or get damaged. Where primary materials are required, these would be sourced locally where possible.

Table 6: Cut/Fill material for Coronation Wood

Location: Coronation Wood	Cut (m ³)	Fill (m ³)	Net (m ³)
Coronation Wood			
Topsoil strip (500mm depth)	-10916	0	-10916
Pavement formation (630mm depth)	0	6609	6609
Bulk earthworks	-20355.6	388.4	-19967.2
Western Access road			
Topsoil strip (500mm depth)	-1937	0	-1937
Pavement formation (630mm depth)	0	1443	1443
Bulk earthworks	-1036.7	257.9	-778.8
Totals			
Total Coronation Wood	31271.6	6997.4	24274.2
Total Western Access road	2973.7	1700.9	1272.8
Overall total	34245.3	8698.3	25547
Overall total excluding topsoil	21392.3	8698.3	12694
Overall total excluding topsoil & pavement	-21392.3	646.3	-20746

Table 7: Cut/Fill material for Pill Box Field Outage Car Park

Location: Pill Box Field	Cut (m ³)	Fill (m ³)	Net (m ³)
Outage Car Park Pavement			

Topsoil strip (150mm depth)	-2887	0	-2887
Pavement formation (450mm depth)	0	6360.1	6360.1
Pavement Cut/fill	-11898.7	8655.6	-3243.1
Embankments Cut/fill	-272.3	4373.9	4101.6
Overall Cut/fill (Pavement + Embankment)			858.5
Outage Car Park Vehicular Access			
Topsoil strip (150mm depth)	-862.7		-862.7
Pavement formation (450mm depth)		2353.4	2353.4
Bulk earthworks (including embankments)	-4637.1	2409.9	-2227.2
Totals			
Total Car Park Pavement	15058	19389.6	5190.1
Total Car Park Access	5499.8	4763.3	-736.5
Overall total	20557.8	24152.9	4453.6
Overall total excluding topsoil	16808.1	24152.9	7344.8
Overall total excluding topsoil & pavement	4909.4	6783.8	1874.4

The quantities of materials required for the Proposed Development are not anticipated to cause an adverse reduction or alteration in the availability of material assets at a regional scale due to the quantities required. Sourcing of materials locally will be preferred wherever possible, which would reduce the distance that materials travel to site, however the effects generated from the transportation of imported materials to site has been assessed and are presented in the **ES Volume I, Chapter 10: Transport** and **Chapter 11: Noise and Vibration**.

6.2 Types and Quantities of Waste and Effects

6.2.1 Excavation and Soil Management

The main type of earthworks waste would be excavated soils as part of site preparation activities. Typically, this would include:

- vegetation;
- topsoil;
- subsoil;
- natural ground; and
- made ground.

The majority of excavated materials created to facilitate construction would be retained on-site for re-use as backfill and landscaping within the boundary of the Outline Development Zone. This is considered to be a sustainable approach as it prevents/minimises waste production. However, as identified in Table 6, the excess material from Coronation Wood Development Area is approximately 20,750m³. This is deemed suitable material for re-use but is not required for the Relocated Facilities Proposed Development. On the basis that it can be used by future works at the Sizewell power station complex, namely the proposed Sizewell C development, it would be stored within a spoil management zone within Field 2 (see Figure 3), throughout the Phase 1 and 2 durations. If the Sizewell C Proposed Development was not taken forward the soil would be used to increase the ground level in Field 2 up to 0.8m from the existing levels. A MMP will be produced in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP) to document how excavated materials will be managed, regardless of the excavation materials future use.

6.2.2 Construction and Demolition Waste

Waste from construction works is anticipated to be minimal and will be separated into individual skips according to the material type and disposed of at recycling centres or landfill sites as appropriate in line with the existing Sizewell B power station local instruction for the Management of Hazardous and Non-Hazardous Waste²⁷. Table 8 below shows the anticipated waste arising's generated as a direct result of the demolition waste volumes of the various relocated facilities. As all excavated material will be reused on site it has been omitted from Table 8.

Table 8: Summary of anticipated waste arisings

Proposed Development activity	Waste arisings from the Proposed Development	Quantities of waste arisings	Additional information on waste arisings
Phase 1 Demolition			
Visitors Centre	Steel	1t	Waste on site would be appropriately stored/stockpiled in accordance with best practice to ensure that waste stays in a suitable condition to be reused onsite or transported off site.
	Concrete	270t	
	Timber	20t	
	Brickwork / Blockwork	10t	
Operations Training Centre	Steel	130t	Any contaminated waste would be handled, stored, and disposed of in accordance with contractors SWMP. Waste would be minimised as far as possible through re-use on-site. If properly managed the construction phase has the potential to produce minimal waste.
	Concrete	1200t	
	Timber	2t	
	Brickwork / Blockwork	20t	
Outage Store	Steel	170t	
	Concrete	1600t	
	Timber	20t	
Northern Compound	Steel	5t	
	Concrete	100t	
	Timber	2t	
	Brickwork / Blockwork	5t	
Phase 2 Demolition			
Technical Training Centre	Steel	7t	
	Concrete	150t	
	Timber	5t	
	Brickwork / Blockwork	20t	
Proposed Developments Office	Steel	6t	
	Concrete	450t	
	Timber	10t	
Outage Office	Steel	50t	
	Concrete	130t	
	Timber	20t	
	Brickwork / Blockwork	580t	
Base Area Facility	Steel	1t	
	Concrete	50t	
	Timber	5t	

²⁷ Sizewell 'B' Power Station Local Instruction Management of Hazardous and Non-Hazardous Waste (Jan 2018) SZB/LI/016/002V

6.2.3 Hazardous Waste

No historic landfill sites were identified within 500m of the Proposed Development, however potential sources of contamination for the Proposed Development which may lead to the production of hazardous waste have been identified in the **ES Volume I, Chapter 12: Land Quality**. These include waste generated from existing buildings scheduled for demolition (asbestos) and waste soils classified as unsuitable for reuse on site or hazardous (organic and/or inorganic contaminants including metals, cyanides, nitrates, halogenated compounds, fuel/oil, asbestos, metals, hydrocarbons, radioactive material and sewage treatment chemicals).

The quantities of hazardous waste that may be encountered cannot be calculated at this time however, as the potential waste stream has been identified, this strategy includes the provision for the storage of hazardous waste and the assessment of relevant local and regional hazardous waste facilities.

As previously stated, there are currently no contaminated soil treatment facilities within Suffolk and therefore, if encountered, this waste stream may have to be delivered to specialised sites located in surrounding regions. This would therefore increase the area of significance and potentially increase the level of significance. However, as with hazardous waste, this waste stream cannot be quantified at this time.

6.2.4 Waste Quantities

It is estimated that approximately 5039 tonnes of C&D waste will be produced over the period of the Proposed Development. This would represent approximately 1.03% and 1.14% of total Suffolk construction waste arisings in Years 1 and 6 respectively. It is considered for there to be sufficient capacity in Suffolk to deal with C&D waste arising from the Proposed Development, which will require the use of a network of MRFs within the county.

7 Monitoring Requirements

7.1 Monitoring

There is no potential for significant adverse effects from the quantity of materials required for the construction of the Scheme. However, material and waste audits should be undertaken throughout the construction phase. This would ensure that re-use and recycling targets are met on-site and would ensure that there is no surplus of materials. By conducting audits regularly this would give an indication of where continual improvements to waste management and minimisation can be made throughout the construction phase.

7.2 Records and Reporting

The Contractor will record progress against the waste management key performance indicators identified in Section 6 of this document.

The SWMP should also be used to measure and monitor the types and quantities of waste taken off-site, to ensure that the waste hierarchy is being implemented where possible.

The SWMP shall be reviewed and updated by the contractor every 6 months or sooner in the event of wastes being removed from site. The review shall include details of all types of waste recorded, its destination and whether it was reused (on- or off-site), recycled, sent to landfill or otherwise disposed of.

Records will include:

- Waste Carriers Registrations, for all waste carriers utilised;
- Copies of Environmental Permits or exemptions of all off-site facilities accepting waste from Sizewell B for reuse, recycling, recovery or disposal; Environmental Permits and Exemptions required for on-site activities;
- Copies of Waste Transfer Notes (to be kept for a minimum of 2 years);
- Copies of Consignment Notes (to be kept for a minimum of 3 years); and
- Copies of consignee's quarterly hazardous waste returns received by the Contractor.

Upon contract completion, the contractor shall ensure that all waste records are provided to EDF Energy (NGL) in a suitable and agreed electronic format.

8 Summary

Conventional waste produced during the operation of the Proposed Development will be managed in line with the existing EDF Energy (NGL) procedures for Sizewell B which require compliance with all relevant waste legislation, including the application of Waste Hierarchy, the application of the precautionary principle for the avoidance of environmental damage from waste and the implementation of the proximity principle, whereby waste would be managed as close as reasonably practicable to the point of origin.

Waste will be segregated to help waste contractors to produce high quality recyclable material and to recover value from it where possible. Performance against the Waste Hierarchy will be monitored on a regular basis in line with the requirements of the EDF Energy's (NGL) Integrated Management System. Removal of waste from the Sizewell B site will be undertaken in compliance with Duty of Care legislation

In total, approximately 5039 tonnes of demolition waste are predicted to be produced on the Proposed Development. All uncontaminated excavated materials generated will be reused onsite, and construction and demolition waste will be separated into individual skips according to the material type and sent to an MRF or waste transfer station, or landfill sites as appropriate in line with the existing Sizewell B power station procedure for operational waste management. Vegetation stripped during the site preparation phase which cannot be retained on-site, would be sent to a composting facility for recovery.

EDF Energy (NGL) would ensure there will be no undue burden upon existing waste infrastructure as a result of the Proposed Development and this is supported by the assessment of likely arisings and capacities of existing facilities within this document. The analysis of existing waste facilities in Suffolk demonstrates there to be adequate capacity to deal with the various waste streams, with the exception of contaminated soils, for which options on a regional level have been identified if required.

EDF Energy (NGL) will ensure that contractors comply with all sustainability objectives, including the re-use, recycling or recovering of at least 90% of its earthworks, construction and demolition related waste (including soil but excluding hazardous waste), and will enforce mechanisms for monitoring and checking achievement.

Appendices

A.	Key Policy, Regulation, Standards and Guidance	32
B.	Local and Regional Waste Facility Assessment	37

A. Key Policy, Regulation, Standards and Guidance

A.1 Waste Framework Directive (2008/98/EC)

Waste Framework Directive (WFD) sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, recovery. It defines when waste ceases to be waste and becomes a secondary raw material (so called end-of-waste criteria), and how to distinguish between waste and by-products. The Directive lays down some basic waste management principles: it requires that waste be managed without endangering human health and harming the environment, and in particular, without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest.

The WFD has set out a five-step waste hierarchy as to how waste should be managed as an important requirement which applies to anyone who produces or manages waste. The waste hierarchy ensures that waste is dealt with in a priority order (see Figure 1).

The following considerations must be taken into account:

- The general environmental protection principles of precaution and sustainability;
- Technical feasibility and economic viability;
- Protection of resources; and,
- The overall environmental, human health, economic and social impacts.

A.2 Environmental Permitting (England and Wales) Regulations 2016 (2016/1154)

The Environmental Permitting (England and Wales) Regulations 2016 replaces the Environmental Permitting (England and Wales) Regulations 2010. These regulations introduce a streamlined system of environmental permitting in England and Wales for certain installations, waste operations and mobile plants. They transpose provisions of fifteen EU Directives which impose obligations requiring delivery through permits or which are capable of being delivered through permits.

Activities under these regimes will be covered by a single form of environmental permit governed by one set of regulations. This provides a system for environmental permits and exemptions for industrial activities, mobile plant, waste operations, mining waste operations, water discharge activities, groundwater activities and radioactive substances. It also sets out the powers, functions and duties of the regulators. Notably, the requirements of the Landfill Directive and Waste Management Licensing are applied under these regulations.

A.3 The Environmental Protection Act 1990

The Environmental Protection Act (EPA) defines the fundamental structure and authority for waste management and control of emissions to the environment. It outlines:

- The definition of controlled waste;
- The requirements of the duty of care with respect to waste and transfer of waste; and
- Waste collection and waste disposal authorities and their roles.

Waste Management issues are considered under Part II of the EPA. Controlled waste includes commercial, industrial (including agricultural waste from 2006) and household waste. Under the Act, the deposition of waste to land without a licence or breaching licence is an offence. The Act is also designed to prevent environmental pollution or harm to human health by prohibiting treatment, storage and disposal of controlled wastes without a licence or in breach of a licence.

Under Section 45, Waste Collection Authorities have a general duty to collect residential waste within their area without charge. Additionally, they have a duty to collect commercial waste within their area where requested and can levy a charge for such services.

Under Section 46 in respect of residential waste, the Local Authority may require:

- Waste of certain types to be stored separately so that it can be recycled;
- Occupiers of dwellings to provide bins of a specified type for storage of wastes;
- Additional bins to be provided for separate storage of recyclable waste; and
- Locations of bins for emptying.

Section 47 states that Local Authorities may require the same provisions in Section 46, but in respect of commercial and industrial wastes.

A.4 National Waste Management Plan for England, 2013

Defra published the National Waste Management Plan England in December 2013. The plan uses the “waste hierarchy” as a guide to sustainable waste management.

The Waste Management Plan for England evaluated how it would support the implementation of the objectives and provisions of the WFD.

The WFD established the principle of ‘proximity’. This is within the context of the requirement on Member States to establish an integrated and adequate network of waste disposal facilities for recovery of mixed municipal waste collected from private properties. The requirement included where such collection also covers waste from other producers.

The plan identified the measures to be taken to ensure that by 2020 at least 50% by weight of waste from properties is prepared for re-use or recycling and at least 70% by weight of construction and demolition (C&D) waste is subjected to material recovery.

Notably, this Proposed Development aims to achieve a rate of <10% of earthworks, construction and demolition waste going to landfill (i.e. non-treatable hazardous waste).

Key objectives of the plan were stated as follows:

- decoupling waste growth from economic growth with more emphasis on waste prevention and re-use;
- meeting and exceeding the Landfill Directive diversion targets for biodegradable municipal waste;
- increasing diversion from landfill and securing better integration of treatment for municipal and non-municipal waste;
- securing the investment in infrastructure needed to divert waste from landfill and for the management of hazardous waste; and
- getting the most environmental benefit from that investment, through increased recycling of resources and recovery of energy from residential waste using a mix of technologies.

A.5 Suffolk Waste Core Strategy, 2011

The Waste Core Strategy (WCS) covers the period up to 2026 and describes the overarching principles and policy direction of waste planning applications in Suffolk. This document is part of a suite of documents which make up the Suffolk Minerals and Waste Development Scheme.

The WCS sets out 6 aims that are linked with 11 objectives. The aims are as follows:

- To manage that volume of waste identified in the East of England Plan as being apportioned to Suffolk.
- To promote and encourage sustainable practices in the transportation and management of wastes.
- To contribute to social and economic well-being.
- To protect against adverse impacts on human well-being and to ensure waste management facilities do not endanger human health.
- To protect and enhance the built, natural and historic environment.
- To assist in reducing the impacts of climate change upon the environment.

A total of 19 development management policies are outlined in the WCS, in order to provide more detailed criteria for the consideration of planning applications for waste management and other developments that might potentially have an impact upon waste management facilities.

Policy WDM12 covers proposals for recycling or transfer of inert and construction, demolition and excavation (CD&E) waste, and states the following:

- At mineral sites, planning permission will be limited to the life of the mineral operation.
- At landfill sites, proposals that will extend the life of landfill operations will only be acceptable if the continued operations do not;
 - a. Result in unacceptable environmental damage, or
 - b. Perpetuate recycling activity poorly related in relation to sources of waste; or;
 - c. Lead to unreasonable delay in restoration.
- On land suitable for general industrial or storage and distribution uses, activities shall take place within purpose-designed facilities.

A.6 Suffolk Minerals and Waste Development Framework

SCC maintains strategic planning responsibility for minerals and waste matters and is therefore required to develop the Minerals and Waste Development Framework, which includes the following constituent documents:

- Minerals and Waste Development Scheme (described in Section A.5);
- Statement of Community Involvement (SCI), which describes how SCC plans to engage with all stakeholders (e.g. local communities, industry groups, other Local Authorities, Environment Agency etc) in the production of the Development Plan Documents (DPDs) and to encourage ongoing public participation;
- Series of detailed minerals and waste DPDs, including
 - a. a core strategy, including generic development control policies (produced separately for minerals and waste);
 - b. a site allocations document identifying individual sites (again to be produced separately for minerals and waste); and
 - c. a proposals map (covering both minerals and waste);

- Annual Monitoring Report, which covers the financial year (e.g. 1st April to 31st March) and is published in the December of each year; and
- Sustainability Appraisal, which concluded that there were no very negative effects in respect of the vision, aims, objectives, policies and proposals contained within the Waste Core Strategy.

A.7 Suffolk Minerals and Waste Development Scheme, 2017

This revised Minerals & Waste Development Scheme sets out the project plan and programme for the preparation of the Suffolk Minerals and Waste Development Framework.

Following the Planning and Compensation Act of 2004, SCC produced the following minerals and waste DPDs that are still in force:

- Suffolk Minerals Core Strategy (adopted 2008);
- Suffolk Minerals Site Specific Allocations (adopted 2009); and
- Suffolk Waste Core Strategy (adopted 2011).

A single Suffolk Minerals & Waste Local Plan (the “Plan”) will be developed to replace all three of the existing DPDs. On 24 May 2018, Suffolk County Council agreed to consult on the new draft Minerals and Waste Local plan from 11 June to 23 July 2018. Once the full plan is produced, it will then be submitted to the Planning Inspector and examined in public, and an approved plan is expected to be adopted in 2019. The Plan will make provision for minerals and waste development until 2036 within the context of town and country planning legislation and guidance, and in co-operation with surrounding local authorities including through the East of England Aggregates Working Party and the East of England Waste Technical Advisory Body.

In terms of waste, this means planning for the provision of waste facilities equivalent to the amount of waste arising within the County.

A.8 Suffolk Coastal Local Plan Review

The Local Plan, previously known as the Local Development Framework, will comprise a set of documents that will supplant in total the “saved” policies from the increasingly outdated Suffolk Coastal Local Plan.

In addition to the three DPDs highlighted in Section A.5, the Local Plan as it relates to Suffolk Coastal district comprises:

- Suffolk Coastal District Local Plan - Core Strategy and Development Management Policies Development Plan Document 2013; and
- Remaining “saved” policies from the Suffolk Coastal Local Plan (incorporating 1st and 2nd alterations) 2001 and 2006;

A review of the Local Plan is currently being undertaken and anticipated to be adopted in November/December 2019. The review, which will replace the Core Strategy, the Site Allocations and Area Specific Policies and the Felixstowe Peninsula Area Action Plan, is being carried out through a joint Local Plan, with the Ipswich Policy Area local planning authorities (Ipswich Borough, Mid Suffolk, Babergh and Suffolk Coastal).

A.9 Suffolk Coastal District Local Plan - Core Strategy & Development Management Policies, 2013

The Suffolk Coastal Core Strategy is a Development Plan Document (DPD) which forms part of the Suffolk Coastal District Local Plan, covering the period 2010 to 2027. A wide range of issues are

examined, but none relating to waste, for which separate DPDs are produced by SCC, as outlined in Section A.5.

A.10 Suffolk Coastal Local Development Scheme 2015

This document supersedes the November 2012 version of the Local Development Scheme (LDS) for Suffolk Coastal.

The LDS is a public statement of SCC's three-year programme, covering 2015-2018 in this instance, to develop the various DPDs that make up the Local Plan for the District. The LDS also incorporates the subject matter and geographical coverage of each document and the timetable for their preparation and review.

Progress in preparing the Local Plan documents is monitored through SCC's annually prepared Authority Monitoring Report and will inform future revisions.

A.11 Contaminated Land Applications in Real Environments (CL:AIRE)

CL:AIRE is an independent, non-profit organisation that aims to encourage the sustainable remediation of contaminated land and groundwater throughout the UK, for effective social and economic use. This is achieved by increasing awareness and confidence in practical, sustainable remedial solutions.

B. Local and Regional Waste Facility Assessment

Table B.1: Material Recycling Facilities and Waste Transfer Stations in Suffolk

Site name	Operator name	Facility type	Post code	Licenced capacity	Distance (km)
Leiston Transfer Station	Mrs Tanya Staff & Mrs Trudy Saxby Skipaway	S0801 No 1: 75kte HCI Waste Transfer Station	IP16 4JD	74,999	5.2
Bentwaters Park	Bentwater Parks Ltd	S0811 No 11: Inert & excavation Waste TS + treatment	IP12 2TW	74,999	19.4
Poplar Farm	Lansdowne Paul	S0811 No 11: Inert & excavation Waste TS + treatment	IP13 7LR	74,999	30.6
Tec Energy	Tec Energy UK Ltd VC Cooke	A11: Household, Commercial & Industrial Waste T Stn	NR34 7TQ	25,000	33.5
Anson Way WTS	B&B Skip Hire	A9: Special Waste Transfer Station	NR34 7SP	74,999	34.7
Former Brick & Pipeworks Site	EE Green & Son Ltd	S0811 No 11: Inert & excavation Waste TS + treatment	NR33 8DS	74,999	34.9
Lowestoft	Anti-Waste Ltd	A9: Special Waste Transfer Station	NR33 7NF	150,000	36.0
Former Brick and Pipe Works	EE Green and Son	S0811 No 11: Inert & excavation Waste TS + treatment	NR33 8DR	74,999	36.0
Foxhall Waste Transfer Station	FCC Waste Services (UK) Limited	A11: Household, Commercial & Industrial Waste T Stn	IP10 0HT	74,999	36.6
Brooke Marine Industrial Estate	East Point Metal Trading Limited	S1514 No 14: 75kte Metal Recycling Site A19: Metal Recycling Site (Vehicle Dismantler)	NR33 9LZ	24999	39.9
Oulton Broad Transfer Station	PW Waters	A1: Household, Commercial & Industrial Waste T Stn	NR32 3LZ	5,000	40.2
FA Edwards And Son Ltd	FA Edwards, D Edwards And J Edwards	A20: Metal Recycling Site (mixed MRS's)	IP21 5EX	25,000	40.3
Unity Street Metal Recycling Facility	Control Trading Ltd	A20: Metal Recycling Site (mixed MRS's)	IP3 0AP	5,000	42.0
S Sacker Claydon Ltd	S Sacker (Claydon) Ltd	A11: Household, Commercial & Industrial Waste T Stn A19: Metal Recycling Site (Vehicle Dismantler)	IP6 0JB	74,999	44.4
Cook Transfer Station	PC and TN Cook	A11: Household, Commercial & Industrial Waste T Stn	IP3 0ET	24,999	44.5
Barham Quarry	Tarmac Aggregates Ltd	S0803 No 3: 75kte HCI Waste TS + treatment	IP6 0PF	74,999	44.5

Bolton Brothers Recycling Centre (MRF)	Bolton Brothers Ltd	A15: Material Recycling Treatment Facility	IP6 0SL	74,999	44.9
Shrublands Quarry Recycling Facility	Brett Aggregates Ltd	S0906 No 6: Inert & Excavation WTS with treatment	IP6 9QJ	250,000	45.1
Masons Material Reclamation Facility	Viridor Waste Management Ltd	A15: Material Recycling Treatment Facility	IP6 0NW	150,000	45.2
Masons Quarry Transfer Station	All Waste Solutions Ltd	A11: Household, Commercial & Industrial Waste T Stn	IP6 0JX	74,999	45.3
Malting Farm	JT Few Plant Hire Limited	S0811 No 11: Inert & excavation Waste TS + treatment	IP6 0LX	74,999	45.9
Blood Hill Quarry	JT Few Plant Hire Ltd	S0811 No 11: Inert & excavation Waste TS + treatment	IP8 4NJ	74,999	46.8
Debrac Centre	S Sacker (Claydon) Limited	A11: Household, Commercial & Industrial Waste T Stn	IP6 8DJ	74,999	48.0
Stowmarket Skip Hire Ltd	Stowmarket Skip Hire Ltd	S0803 No 3: 75kte HCI Waste TS + treatment	IP14 2EH	4,999	51.3
V Cracknell And Son Limited	V Cracknell And Son Ltd	A20: Metal Recycling Site (mixed MRS's)	IP14 2AL	17,000	52.1
Folly Farm Waste Management Facility	Shotley Holdings Limited	A1: Co-Disposal Landfill Site A11: Household, Commercial & Industrial Waste T Stn	IP9 2NY	74,999	52.6
Safety Kleen	Safety Kleen UK	A9: Special Waste Transfer Station	IP30 9HN	24,999	59.0
Elmswell	CG Finch	A20: Metal Recycling Site (mixed MRS's)	IP30 9QR	5,000	59.7
Harpers Hill Farm	TD & AM Bugg	A14: Transfer Station taking Non-Biodegradable Wastes A11: Household, Commercial & Industrial Waste T Stn	CO6 4NU	15,475 (2015 throughput)	69.2
Troston Estates	Whites Recycling Ltd.	A11: Household, Commercial & Industrial Waste T Stn	IP31 1EW	39,999	69.3
Miniwaste	Mini Waste Limited	A11: Household, Commercial & Industrial Waste T Stn	CO10 0RE	74,999	71.6
Barton Road	UK Power Networks (Holdings) Ltd	A9: Special Waste Transfer Station	IP32 7BG	25,000	71.8
Hollow Road Farm	Shotley Holdings	S0807 No 7: 75kte HCI Waste TS + treatment + asbestos	IP31 1SJ	74,999	73.0
Hollow Road Farm	Steve Lumley Planing Limited	S0811 No 11: Inert & excavation Waste TS + treatment	IP31 1SJ	75,000	73.2
Oss Thetford Transfer Station	Orcol Fuels Ltd Oss Group Ltd	A9: Special Waste Transfer Station	IP31 1NQ	5,000	75.0
Balloon Barn Farm	Culford Waste Ltd	A11: Household, Commercial & Industrial Waste T Stn	IP28 6TY	35,000	78.1
Glemsford Skip Hire	Russell James Hugh	A11: Household, Commercial & Industrial Waste T Stn	CO10 7QU	5,000	80.5

Higham Rail Depot	Tarmac Aggregates Limited	A15: Material Recycling	CB8 7QT	74,999	87.3
Glemsford Skip Hire	Russell James Hugh	A11: Household, Commercial & Industrial Waste T Stn	CO10 7QU	5,000	90.9
The Carrops	Scrapco Metal Recycling Ltd	A20: Metal Recycling Site (mixed MRS's)	IP28 8LD	24,999	92.1
HEH Enterprises - Chippenham Transfer Station	HEH Enterprises Ltd	A11: Household, Commercial & Industrial Waste T Stn	CB8 7QJ	25,000	92.3
Red Lodge Transfer Station	Anti - Waste Ltd	A11: Household, Commercial & Industrial Waste T Stn	IP28 8LG	25,000	92.7
Old Chicory Factory	Murfitts Industries Ltd	A15: Material Recycling	IP27 9AD	75,000	93.5
The Yard	Medley James	S0801 No 1: 75kte HCI Waste Transfer Station	IP28 8PS	74,999	94.9
Lakenheath Recycling Facility	Sutton Services Limited	S0811 No 11: Inert & excavation Waste TS + treatment	IP27 9BX	75,000	95.7
Lackford Recycling Facility	Tamar Recycling (Suffolk) Limited	S1506 No 6: 75kte HCI Waste TS + treatment	IP28 6HJ	74,999	96.8
Mayer Parry - Snailwell	Mayer Parry Recycling Ltd	A20: Metal Recycling Site (mixed MRS's)	CB8 7ND	75,000	98.5
Haverhill Recycling and Transfer Station	Anti - Waste Ltd	A11: Household, Commercial & Industrial Waste T Stn	CB9 8QP	200,000	99.3
St Edmundsbury Borough Depot	St Edmundsbury Borough Council	S0807 No 7: 75kte HCI Waste TS + treatment + asbestos	CB9 8QP	4,999	99.3

Table B.2: Composting facilities in Suffolk

Site Name	Post code	Operator	Capacity for planning purposes (tpa)	Throughput 2016 (tpa)	Distance (km)
Parham Recycling Centre	IP13 9AF	Tamar Composting (East Anglia) Limited	35,000	31,500	20.5
Foxhall Composting	IP10 0HT	Viridor Waste Suffolk Ltd	24,999		38.7
Cliff Quay	IP3 0AT	Anglian Water Services		12,400	45.0
Creeting Compost Facility	IP6 8ND	Material Change Creeting Ltd	50,000	23,200	47.5
Lackford Composting Facility	IP28 6HJ	Countrystyle Recycling (Suffolk) Ltd	75,000	35,000	86.4
Red Lodge Compost Facility	IP28 8LG	Anti - Waste Ltd		17,800	95.5

Table B.3: Inert Waste Transfer and Treatment Facilities in Suffolk

Site name	Operator name	Facility type	Post code	Licenced capacity (tpa)	Distance (km)	Throughput (tpa)		
						2013	2014	2015
Bentwaters Park	Bentwater Parks Ltd	S0811 No 11: Inert & excavation Waste TS + treatment	IP12 2TW	74,999	19.4	39,598	25,766	28,692
Tippers R Us, Sinks Pit	Prentice Aircraft And Cars Limited	A16: Physical Treatment Facility	IP5 2PE	250,000	37.3		15,668	153,901
Flixton Park Quarry	Cemex UK Materials Ltd	<ul style="list-style-type: none"> SR2010 No12: Treatment of waste to produce soil <75,000 tpa A25: Deposit of waste to land as a recovery operation 	NR35 1NN	74,999	38.2	30,035	46,103	24,523
Waldringfield Recycling Facility	Brett Aggregates Ltd	A16: Physical Treatment Facility	IP10 0BL		40.6	56,051	24,227	12,753
Shrublands Quarry Recycling Facility	Brett Aggregates Ltd	S0906 No 6: Inert & Excavation WTS with treatment	IP6 9QJ	250,000	45.1	14,974	14,268	2,567
Malting Farm	JT Few Plant Hire Limited	S0811 No 11: Inert & excavation Waste TS + treatment	IP6 0LX	74,999	45.9	32,580	41,135	54,388
Folly Farm Waste Management Facility	Shotley Holdings Limited	A1: Co-Disposal Landfill Site A11: Household, Commercial & Industrial Waste T Stn	IP9 2NY	74,999	52.6	70,823	83,181	74,322
Harpers Hill Farm	TD & AM Bugg	<ul style="list-style-type: none"> A14: Transfer Station taking Non-Biodegradable Wastes A11: Household, Commercial & Industrial Waste T Stn 	CO6 4NU		69.2	16,287	16,891	15,475
Hollow Road Farm	Steve Lumley Planing Limited	S0811 No 11: Inert & excavation Waste TS + treatment	IP31 1SJ	75,000	73.2	10,485	12,179	19,336
Balloon Barn Farm	Culford Waste Ltd.	A11: Household, Commercial & Industrial Waste T Stn	IP28 6TY	35,000	78.1	13,054	14,891	17,112
RG Greenways Recycling	Housden RG Housden	Waste transfer station	IP28 6RE	75,000	88.8	25,730	24,760	14,090
The Carrops	Scrapco Metal Recycling Ltd	A20: Metal Recycling Site (mixed MRS's)	IP28 8LD	24,999	92.1	9,552	10,512	6,090
Lakenheath Recycling Facility	Sutton Services Ltd	S0811 No 11: Inert & excavation Waste TS + treatment	IP27 9BX	75,000	95.7	-	19,616	18,588

Table B.4: Hazardous waste facilities in Suffolk and neighbouring counties

County	Operator	Facilities	Permit Type	Total Throughput 2016 (tonnes)	Postcode	Distance (km)
Suffolk	B & B Skip Hire Limited	B & B Skip Hire	A9 : Haz Waste Transfer Station	83.6	NR34 7TL	22.7
Suffolk	Anti - Waste Ltd	Lowestoft	A9 : Haz Waste Transfer Station	340.8	NR33 7NF	24.8
Suffolk	FA Edwards, D Edwards And J Edwards	FA Edwards And Son Ltd	A20 : Metal Recycling Site (mixed MRS's)	23.1	IP21 5EX	27.9
Essex	East Point Metal Trading Ltd	East Point Metal Trading Limited			NR33 9LZ	28.0
Suffolk	S R C L Limited	Ipswich Clinical Waste Incinerator	S0824 : Clinical Waste Transfer Station	0.0	IP4 5PG	31.0
Suffolk	Mid Suffolk District Council	Creeting Road Depot	A9 : Haz Waste Transfer Station	88.7	IP14 5AT	39.5
Norfolk	Clements Paul	Great Yarmouth	A9 : Haz Waste Transfer Station	282.0	NR31 0LS	40.5
Norfolk	Augean North Sea Services Limited	Great Yarmouth WM Resource Centre EPR/ZP3637RM	A21 : Chemical Treatment Facility	6592.2	NR31 0LX	40.6
Norfolk	Biffa Waste Services Limited	Great Yarmouth WM Resource Centre EPR/RP3636SR	A21 : Chemical Treatment Facility	827.4	NR31 0LX	40.6
Norfolk	Augean North Sea Services Limited	Great Yarmouth Waste Management Resource Centre	A9 : Haz Waste Transfer Station	0.2	NR31 0LX	40.6
Norfolk	C & L Waste Oil Collection Limited	Great Yarmouth Oil Reclamation Facility EPR/NP3038MB	A9 : Haz Waste Transfer Station	3563.6	NR31 0DN	41.1
Norfolk	Mitchell C B	Great Yarmouth Oil Reclamation Facility	A9 : Haz Waste Transfer Station	141.6	NR31 0DN	41.1
Norfolk	Mayer Parry (East Anglia) Ltd	Great Yarmouth	A20 : Metal Recycling Site (mixed MRS's)	118.3	NR30 3LD	41.5
Suffolk	Shotley Holdings Limited	Folly Farm Waste Management Facility	L01 : Hazardous Merchant LF	7646.0	IP9 2NY	42.4
Suffolk	Slicker Recycling Limited	Hollywell Waste Oil Treatment Facility EPR/DP3438AF	A17 : Physico-Chemical Treatment Facility	3514.9	IP3 0BE	42.8
Norfolk	A C Environmental Services Ltd	Cats Premises	A9 : Haz Waste Transfer Station	75.6	NR16 1ER	43.7
Suffolk	Safety Kleen U. K. Limited	Safetykleen U K	A9 : Haz Waste Transfer Station	968.9	IP30 9HN	44.3
Suffolk	C. K Chemicals Ltd	C K Chemicals	A21 : Chemical Treatment Facility	227.1	IP7 6BQ	45.8
Norfolk	Norse Environmental Waste Services Limited	Caister Transfer Station	A11 : Household, Commercial & Industrial Waste T Stn	607.8	NR30 5BE	46.8
Norfolk	Culling D A	Hethersett	A20 : Metal Recycling Site (mixed MRS's)	59.0	NR9 3AX	48.3
Norfolk	Biffa Waste Services Limited	Attleborough WEEE Recycling Facility	A17 : Physico-Chemical Treatment Facility	1234.1	NR17 2QZ	49.8

County	Operator	Facilities	Permit Type	Total Throughput 2016 (tonnes)	Postcode	Distance (km)
Norfolk	European Metal Recycling Limited	Halfmoon Way	A20 : Metal Recycling Site (mixed MRS's)	79.6	NR2 4EB	50.1
Norfolk	Anti - Waste Ltd	Mile Cross	A11 : Household, Commercial & Industrial Waste T Stn	295.8	NR2 4LH	50.4
Herfordshire	Eastern Waste Disposal Ltd	Bob's Skips		1.9	CO15 4XA	51.8
Norfolk	Mellor Metals Ltd	Mellor Metals	A20 : Metal Recycling Site (mixed MRS's)	152.2	NR17 1LG	53.6
Norfolk	Anti - Waste Ltd	Costessey M R F Transfer Station	A9 : Haz Waste Transfer Station	68.7	NR5 0TL	54.2
Suffolk	St Edmundsbury Borough Council	St Edmundsbury Depot	A9 : Haz Waste Transfer Station	167.0	IP33 3YS	56.4
Essex	Eastern Waste Disposal Limited	Eastern Waste Disposal Ltd	A11 : Household, Commercial & Industrial Waste T Stn	1884.4	CO7 0SD	57.2
Essex	U K Power Networks (Holdings) Ltd	Barton Road	A9 : Haz Waste Transfer Station	15.7	IP32 7BG	57.8
Suffolk	Mini Waste Limited	Miniwaste	A11 : Household, Commercial & Industrial Waste T Stn	0.4	CO10 0RE	58.0
Norfolk	Viridor Waste Management Ltd	Larkshall Mill	A11 : Household, Commercial & Industrial Waste T Stn	8.1	IP24 1QY	58.2
Suffolk	Shotley Holdings Ltd	Hollow Road Transfer Station	S0807 : HCI Waste TS + treatment + asbestos	243.3	IP31 1SJ	58.3
Herfordshire	T O C Recycling Ltd	Dog Kennel Farm	A20 : Metal Recycling Site (mixed MRS's)	380.7	SG1 2ES	60.8
Norfolk	Viridor Waste Management Ltd	Howlett Way Waste Transfer And Treatment Station	A11 : Household, Commercial & Industrial Waste T Stn	12.9	IP24 1HZ	61.2
Norfolk	Rentokil Initial U K Limited	Thetford Service Centre	A12 : Clinical Waste Transfer Station	2.1	IP24 1HZ	61.2
Norfolk	Anti - Waste Ltd	Anti Waste Ltd - Thetford Transfer Station	A9 : Haz Waste Transfer Station	46.2	IP24 3RW	61.7
Norfolk	Norfolk Waste Ltd	Shipdham	A11 : Household, Commercial & Industrial Waste T Stn	17.3	IP25 7SD	62.0
Norfolk	European Metal Recycling Limited	Lenwade Recycling Facility	A20 : Metal Recycling Site (mixed MRS's)	448.8	NR9 5SN	62.1
Essex	Colchester Borough Council	Shrub End Road Depot Transfer Station	A11 : Household, Commercial & Industrial Waste T Stn	31.4	CO3 4RN	62.3
Norfolk	Cushion C F	Spa Common	A20 : Metal Recycling Site (mixed MRS's)	113.2	NR28 9LG	66.7
Norfolk	Norse Environmental Waste Services Limited	Unit 6 Dunkirk Industrial Estate	A11 : Household, Commercial & Industrial Waste T Stn	21.5	NR11 6SU	66.9

County	Operator	Facilities	Permit Type	Total Throughput 2016 (tonnes)	Postcode	Distance (km)
Suffolk	FCC Recycling (UK) Limited	Mildenhall Household Waste Recycling Centre	A11 : Household, Commercial & Industrial Waste T Stn	155.7	IP28 7JQ	72.6
Suffolk	Scrapco Metal Recycling Ltd	The Carrops			IP28 8LD	75.2
Norfolk	W I S E R Recycling Ltd	WEEE- Treatment Facility	S0823 : WEEE treatment facility	6034.8	IP26 4JQ	76.5
Essex	Braintree District Council	Cordons Farm	A9 : Haz Waste Transfer Station	27.1	CM77 8DL	78.2
Essex	I C E X Ltd	I C E X	A9 : Haz Waste Transfer Station	54.4	CM8 2FN	78.5
Essex	Brand & Howes Environmental Ltd	Brand & Howes Environmental Ltd	S0821 : Metal recycling site	215.0	CM77 8HB	79.1
Herefordshire	St Edmundsbury Borough Council	St Edmundsbury Borough Depot	S0807 : HCl Waste TS + treatment + asbestos	11.9	CB9 8QP	80.2
Essex	R D Trading Limited	The Tekhnicon Centre	S0823 : WEEE treatment facility	27.2	CM7 2YN	80.3
Cambridgeshire	Mayer Parry Recycling Ltd	Mayer Parry - Snailwell	A20 : Metal Recycling Site (mixed MRS's)	5046.6	CB8 7ND	81.0
Essex	Maldon District Council	Promenade Park Depot	A9 : Haz Waste Transfer Station	11.7	CM9 5UR	81.6
Essex	A Clarke & Sons Ltd	(blank)	A20 : Metal Recycling Site (mixed MRS's)	0.9	CM6 3LD	84.7
Essex	European Metal Recycling Limited	Boreham Recycling Facility	A20 : Metal Recycling Site (mixed MRS's)	64.7	CM3 3AW	86.4
Norfolk	Glazewing Limited	Glazewing - West Dereham	A11 : Household, Commercial & Industrial Waste T Stn	387.4	PE33 9RR	86.8
Essex	Chelmsford City Council	Drovers Way	A11 : Household, Commercial & Industrial Waste T Stn	52.2	CM2 5PH	88.9
Norfolk	Bacon Peter	Innisfree M R S	A20 : Metal Recycling Site (mixed MRS's)	45.2	PE32 1EY	95.4
Norfolk	OCS Group U K Limited	Kings Lynn Site	A12 : Clinical Waste Transfer Station	0.3	PE30 4HG	98.1
Cambridgeshire	Malary Limited	Malary Oil Treatment Plant, Cottenham	A17 : Physico-Chemical Treatment Facility	24388.7	CB24 8PS	98.6
Norfolk	Norse Environmental Waste Services Limited	King's Lynn Resource Management Centre	A11 : Household, Commercial & Industrial Waste T Stn	240.1	PE34 3RD	98.7

Table B.5: Landfills located within Suffolk with sufficient remaining capacity

Operator name	Facility name	Facility address	Landfill type	Site	Remaining Capacity end 2015 (cubic metres)	Road Distance (km)
Viridor Waste Management Ltd	Masons Landfill	Great Blakenham, Ipswich IP6 0NW	Non-Hazardous Landfill With Stable Non-Reactive Hazardous Waste cell		3,821,952	44.8
Brett Aggregates Ltd	Shrublands Quarry	Shrubland Park, Coddenham IP6 9QJ	Inert Landfill		546,940	45.0
Shotley Holdings Limited	Folly Landfill	Farm Ipswich IP9 2NY	Non-Hazardous Landfill With Stable Non-Reactive Hazardous Waste cell		601,493	55.5
Aggmax Limited	Lawn Quarry	Farm Lawn Quarry, Old Bury Road, Wetherden, Stowmarket, Suffolk, IP30 9RS,	Inert Landfill		1,330,000	60.2
Brett Aggregates Limited	Layham Quarry Landfill	Rands Road, Layham, Hadleigh IP7 5RW	Inert Landfill		924,548	64.2

Table B.6: Facilities permitted to treat contaminated soils

Site Name	Post Code	County	Feedstock/treatment type	Capacity	Distance (km)
Biogenie, Westmill Soil Treatment Facility, Ware	SG12 0ES	Hertfords hire	Treatment of a wide range of materials including soils, railway ballast, dredgings, treatment plant residues. Suitable contaminants include, TPH, PAH, TCE, PCE, Organohalogenated solvents and Kerosene.		152
Biogenie/ Biffa, Redhill	RH1 4ER	Surrey	Wide range of materials including soils, railway ballast, dredgings, treatment plant residues. Suitable contaminants include, TPH, PAH, TCE, PCE, Organohalogenated solvents and Kerosene.		197
Soil and water solutions, Bell Farm, Wexham Park Lane	SL3 6LX	Buckinghamshire	<ul style="list-style-type: none"> ● Asbestos Remediation & Management ● Soil Vapour Extraction ● Air Sparging ● Bio Venting ● Bio Slurping ● Pump & Treat ● Bioremediation ● Oxidation ● Waste Management including Haulage & Disposal ● Soil Declassification ● Off-site Treatment/ Recycling ● Invasive weed control and disposal 		262

Site Name	Post Code	County	Feedstock/treatment type	Capacity	Distance (km)
Terramundo, Kingscliffe, Northamptonshire	PE8 6XX	Northamptonshire	Hazardous, non-hazardous soils and dredging waste		284
Dunton Environmental, Wolverhampton	WV1 3DW	Staffordshire	<ul style="list-style-type: none"> • Hazardous and contaminated non-hazardous soils and other waste materials. • Contaminated soils and sludges • Japanese knotweed and other invasive weeds • Dredging soils • Effluent sludges and filter cakes • Exploration, mining and quarrying of minerals • Petroleum refining, natural gas purification and pyrolytic treatment coal • Oily wastes and wastes of liquid fuels • Waste management facilities and wastewater treatment plants • Waste not otherwise specified. 		297
Howley Park Road East Morley, Leeds	LS27 0SW	Yorkshire, West Riding	Materials including soils, railway ballast, dredgings, treatment plant residues. Suitable contaminants include, TPH, PAH, TCE, PCE, Organohalogenated solvents and Kerosene.		337
Acumen's Waste Treatment and Recovery Facility, York	YO19 6ED	Yorkshire, East Riding	Materials, including street-sweeping and road cleaning residues, construction wastes, contaminated soils and by-products from other waste processes.	250,000 tonnes per annum of suitable waste materials	360
BIFFA-Biogenie, Meece, Staffs	ST15 0QN	Staffordshire	Materials including soils, railway ballast, dredgings, treatment plant residues. Suitable contaminants include, TPH, PAH, TCE, PCE, Organohalogenated solvents and Kerosene.		382
Cory Churngold Dudley	BS11 9DQ	Gloucestershire	Contaminations treated: <ul style="list-style-type: none"> • Asbestos Contamination • Chlorinated Solvents • Heavy Metal Contamination • Hydrocarbon Contamination • Invasive Plants • Persistent Organic Pollutants 		402
Towens Weston Super Mare	BS23 3UU	Somerset	Hazardous hydrocarbon (aliphatic and aromatic) impacted soil - oil, diesel, petrol, other fuel. Removal of contaminants (stones, timber, plant tissue etc) from non-hazardous soils.		416
Terramundo (Augean Plc), Port Clarence, Teeside	TS2 1UE	Durham	Hazardous, non-hazardous soils and dredging waste.		428
Neal Soil Suppliers, Cardiff	CF3 2EJ	Monmouthshire	Standalone soil operation which accepts soils from a wide range of construction jobs, screens the material and adds a proportion of compost to produce a range of high quality soils.		431
UK Remediation,	EX5 1DR	Devon	Soils and Stones		465

Site Name	Post Code	County	Feedstock/treatment type	Capacity	Distance (km)
Exeter, Devon					
The Treatment Hub	SA5 4SF	Glamorgan	In addition to full remediation, the Treatment Hub are able to assist in: <ul style="list-style-type: none"> • Soils testing and laboratory services • Waste classification and assessment • Provide necessary documentation • Onsite excavation and loading • Source delineation • Soils transport to the Treatment hub • Safe knowledge that the soils are fully recycled and brought back into beneficial re-use (often on third party sites) • Supply of fill materials and aggregates 		502
Dunton Environmental and Wheal Jane Ltd, Truro	TR3 6EE	Cornwall	Hazardous / Non-hazardous soils and dredging spoil		576

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VOLUME II:
TECHNICAL APPENDICES

5.1 EIA Scoping Report



NUCLEAR GENERATION LIMITED

Sizewell B Relocated Facilities

EIA Scoping Report

October 2016

Request for a formal scoping opinion in accordance with Regulation 13(1) of The Town and Country Planning (Environmental Impact Assessment) (England & Wales) Regulations 2011 (as amended)

Document Reference: SZB/REP/PD/4C850A0/001

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CONTENTS

1.	INTRODUCTION	1
1.1	Introduction.....	1
1.2	Request for a Scoping Opinion.....	2
1.3	Scoping Report Content	2
2.	PLANNING CONTEXT	4
2.1	Planning and Legislative Context	4
2.2	Environmental Impact Assessment	4
2.3	Project Need and Relationship with Sizewell C	5
2.4	Related Assessments.....	7
2.5	Permits and Other Consents	9
3.	PROPOSED DEVELOPMENT	10
3.1	Site Context.....	10
3.2	Description of the Site	10
3.3	Facilities to be Relocated	11
3.4	Design Development	11
3.5	Proposed Development	12
3.6	Construction of the Proposed Development	16
3.7	Environmental Management.....	18
4.	CONSIDERATION OF ALTERNATIVES	19
5.	EIA APPROACH AND METHODOLOGY	20
5.1	Scoping	20
5.2	Overarching Approach to the EIA.....	20
5.3	Determination of the Scope	20
5.4	Assessment of Effects and Determining Significance.....	21
5.5	Mitigation and Residual Effects	24
5.6	Inter-relationships and Cumulative Effects	25
5.7	EIA Assumptions and Limitations	26
5.8	Consultation	26
6.	TOPICS SCOPED IN	27
6.1	Terrestrial Ecology.....	27
6.2	Landscape and Visual	37
6.3	Historic Environment	41
6.4	Amenity and Recreation	46
6.5	Transport	49
6.6	Noise and Vibration	53
6.7	Land Quality and Hydrogeology	58
6.8	Surface Water and Flood Risk.....	69
6.9	Radiological.....	74
7.	TOPICS SCOPED OUT	77
7.1	Introduction.....	77

NOT PROTECTIVELY MARKED

7.2	Air Quality	77
7.3	Socio-economics	79
7.4	Agriculture	80
7.5	Waste	81
8.	PROPOSED STRUCTURE OF THE ES	82
	REFERENCES.....	83
	APPENDIX A – GLOSSARY OF TERMS AND LIST OF ABBREVIATIONS.....	88
	APPENDIX B – BADGER INFORMATION.....	93

TABLES

Table 3.1: Schedule of facilities to be relocated and proposed facilities	13
Table 5.1: Generic guidelines for the assessment of sensitivity	22
Table 5.2: Generic guidelines for the assessment of magnitude	23
Table 5.3: Classification of effects.....	23
Table 5.4: Generic effect definitions.....	24
Table 6.1: Ecological statutory designated sites within 10km of the Site	27
Table 6.2: Values to be used to assess the magnitude of impact for noise from construction noise	55
Table 6.3: Generic effect descriptions and actions recommended.....	55
Table 6.4: LOAEL and SOAEL values for construction noise.....	56
Table 6.5: Values to be used to assess the magnitude of impact for noise from road traffic noise	57
Table 6.6: Summary of published geological conditions at the Site	58
Table 6.7: Potential sources of contamination.....	61

FIGURES

Figure 1.1	Site Location Plan
Figure 1.2	Indicative Development Boundary
Figure 3.1	Key Environmental Receptors and Designated Areas (1 of 2)
Figure 3.2	Key Environmental Receptors and Designated Areas (2 of 2)
Figure 3.3	Existing Site Layout Plan
Figure 3.4	Proposed Site Layout Plan
Figure 6.1	Reptile Survey Results
Figure 6.2	Trees with Bat Roost Potential

1. INTRODUCTION

1.1 Introduction

- 1.1.1 This Scoping Report has been prepared by EDF Energy Nuclear Generation Limited¹ (herein referred to as 'NGL') as part of the process of undertaking an Environmental Impact Assessment (EIA) of NGL's proposals for the relocation of a number of existing Sizewell B facilities (known as the Sizewell B Relocated Facilities Project and herein referred to as the 'proposed development'). The facilities are currently sited to the north and west of the existing Sizewell B nuclear power station. The site location is shown in **Figure 1.1**.
- 1.1.2 Once the proposed new facilities are constructed, the existing Sizewell B facilities would be demolished. Replacement facilities would be constructed and located on land largely owned by NGL in proximity to the Sizewell B station (see **Section 3** of this Scoping Report for details of the proposals).
- 1.1.3 The areas from which the facilities would be removed together with the land that would be used to construct the new facilities is herein referred to as the 'Site'. **Figure 1.2** provides an indicative development boundary for the purposes of scoping.
- 1.1.4 The Site is located on the Suffolk coast between the coastal towns of Aldeburgh and Southwold. The nearest town is Leiston, the centre of which is located approximately 2.5 kilometres (km) to the south-west of the existing Sizewell B power station. To the south of the nuclear power station complex (Sizewell A (NDA / Magnox Ltd) and Sizewell B) lies the village of Sizewell. The Site indicative development boundary covers an area of approximately 39 hectares (ha), as shown in **Figure 1.2**.
- 1.1.5 This Scoping Report accompanies a written request to Suffolk Coastal District Council (SCDC) for a Scoping Opinion pursuant to Regulation 13(1) of The Town and Country Planning (Environmental Impact Assessment) (England & Wales) Regulations 2011 (as amended) (the 'EIA Regulations') (Ref. 1.1). It is considered that the proposed development falls within Schedule 2 Part 13(a) of the EIA Regulations, which provides that "*Any change to or extension of development of a description listed in Schedule 1 [i.e. a nuclear power station]where that development is already authorised, executed or in the process of being executed*" may require EIA.
- 1.1.6 As described in **Section 2**, the requirement for EIA for Schedule 2 developments is determined by the criteria in Schedule 3. In the case of the works proposed in relation to Sizewell B and the Schedule 3 criteria, the need for EIA is not definite. Therefore, on the basis of the potential for significant environmental effects, NGL has decided to volunteer an EIA for the proposed development. This report outlines the proposed approach to be taken, and the factors to be considered in undertaking the EIA.

¹ EDF Energy Nuclear Generation Limited (company number 03076445), part of the EDF Energy group.

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1.1.7 The EIA will be reported as an Environmental Statement (ES) which will be submitted as part of a planning application for the proposed development to SCDC, as the local planning authority.

1.1.8 For the purposes of this Scoping Report, the following terms are defined:

- **The proposed development:** comprises the construction of replacement facilities at locations within the existing Sizewell power station complex (Sizewell A and B power stations) and to the south of the complex, followed by the demolition and removal of existing facilities.
- **The Site:** the areas from which the facilities would be removed together with the land that would be used to construct the new facilities, as shown by the development boundary in **Figure 1.2**. The development boundary is indicative for the purpose of scoping.

1.1.9 A full glossary of terms and list of abbreviations is provided in **Appendix A**.

1.2 Request for a Scoping Opinion

1.2.1 In accordance with Regulation 13(2) of the EIA Regulations, this report for a Scoping Opinion includes:

- *“a plan sufficient to identify the land”* – see **Figure 1.2**;
- *“a brief description of the nature and purpose of the development and of its possible effects on the environment”* – see **Section 3** for a description of the nature and purpose of the development and **Section 6** for a description of potential environmental effects; and
- *“such other information or representations as the person making the request may wish to provide or make”*.

1.3 Scoping Report Content

1.3.1 The structure of this Scoping Report is as follows:

- **Section 2** provides an overview of the planning and legislative context for the proposed development, outlines the purpose of the development, describes the related assessments to be undertaken and the approach to identifying any other permits and consents required;
- **Section 3** provides a description of the existing site, key environmental receptors and the proposed development, includes details of the design proposals, and an overview of the construction, demolition and operational activities;
- **Section 4** describes the approach to the consideration of alternatives that will be adopted in the ES;
- **Section 5** describes the general approach to the EIA and the EIA methodology to be adopted, including the approach to considering inter-relationship and cumulative effects;
- **Section 6** presents the baseline studies undertaken to date, the approach to the assessment and potential environmental effects for all environmental topics that are proposed to be scoped into the EIA;

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- **Section 7** details the environmental topics that are proposed to be scoped out of the EIA; and
- **Section 8** presents the proposed structure of the ES.

2. PLANNING CONTEXT

2.1 Planning and Legislative Context

- 2.1.1 The proposed development will require planning permission from SCDC as the local planning authority. Although a formal screening opinion has not been sought from SCDC, NGL has volunteered to conduct an EIA for the proposed development. This decision has been taken having regard to the EIA Directive 85/337/EEC (as amended) as transposed into UK legislation under the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 (the 'EIA Regulations'). An application for planning permission will be accompanied by an ES.
- 2.1.2 The policy context for this development and how the proposals have been taken into account will be set out in the application documentation. The Suffolk Coastal Core Strategy and Development Management Policies document (adopted in July 2013) (Ref. 2.1) forms part of the Development Plan for the district. The Council will continue to have regard to the 'saved' policies from the previously adopted Suffolk Coastal Local Plan (Suffolk Coastal Local Plan remaining Saved Policies – July 2013) (Ref. 2.2) until replacement policies are adopted in the Site Allocations and Area-Specific Policies. Other material considerations may include supplementary guidance and the National Planning Policy Framework (NPPF) (Ref. 2.3). A key material consideration will be the National Policy Statements (NPSs) which set out national policy for the development of nationally significant infrastructure. Two NPSs are of relevance, the Overarching NPS for Energy (EN-1) (Ref. 2.4) and the NPS for Nuclear Power Generation (EN-6) (Ref. 2.5). EN-6 identifies eight potentially suitable sites for deployment of new nuclear power stations, one of which is the Sizewell C site.
- 2.1.3 While NPSs are not part of the statutory development plan for the purposes of the town and country planning regime, they are statements of national policy on nationally significant infrastructure. They are, therefore, a material consideration for any planning application being considered in this respect and should be given substantial weight in the determination of relevant applications.

2.2 Environmental Impact Assessment

- 2.2.1 The EIA Regulations set out that a proposed development is, or has the potential to be an EIA development if it falls within either one of two categories of projects, in Schedule 1 or Schedule 2 of the Regulations. In respect of Schedule 1 developments an EIA is required in every case. In respect of Schedule 2 developments an EIA is required only if a project is likely to give rise to significant environmental effects.
- 2.2.2 The proposed development, comprising the relocation, demolition and replacement of a number of existing facilities at Sizewell B nuclear power station is considered to be Schedule 2 development under Part 13(a), which provides that *"Any change to or extension of development of a description listed in Schedule 1....where that development is already authorised, executed or in the process of being executed"* may require EIA.

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- 2.2.3 As the proposed development is categorised as a Schedule 2 development, the requirement for EIA is then dependent on whether significant environmental effects are likely to arise, using the criteria in Schedule 3 of the EIA Regulations to address this question. In the case of the works proposed in relation to Sizewell B, the need for EIA is not clear cut but NGL has volunteered to conduct an EIA and include an ES in support of the planning application.
- 2.2.4 EIA is a tool for systematically examining and assessing the impacts and effects of a development on the environment. The following stages are typically included in an EIA:
- scoping to determine the potential impacts the EIA should assess;
 - baseline data collection and surveys;
 - identification and assessment of potential impacts;
 - identification of mitigation measures and monitoring requirements; and
 - reporting of the EIA in an ES to be submitted to the relevant authority as part of the planning application process.
- 2.2.5 An ES typically contains the following information:
- a description of the development and alternative options considered;
 - a description of the 'baseline' environment that the development would affect;
 - prediction of potential impacts on the baseline and assessment of significance, both positive and negative, of environmental effects;
 - description of proposed mitigation measures to avoid or reduce (or where this is not possible, to compensate for) significant adverse effects; and
 - a Non-Technical Summary (NTS).
- 2.2.6 The proposed structure for the ES is detailed in **Section 8**.

2.3 Project Need and Relationship with Sizewell C

- 2.3.1 As identified in **Section 3**, the area from which the facilities are being removed comprises part of the Sizewell C Project 'main development site' on which a new nuclear power station is proposed. The Sizewell C Project, which is currently within its pre-application consultation phase, will be subject to a separate application for development consent.
- 2.3.2 The Sizewell B Relocated Facilities Project is a standalone project, which comprises buildings and facilities for the Sizewell B nuclear power station. Therefore, NGL is developing the proposals and seeking the relevant permissions (e.g. planning permission) and any other relevant consents. The majority of the development proposals are located on Sizewell B's nuclear licensed site. Under its Nuclear Site Licence for Sizewell B, NGL is legally responsible for ensuring all the activities on its nuclear licensed site comply with the site licence conditions regulated by the Office for Nuclear Regulation (ONR). In order to have sufficient control of nuclear and conventional safety on its nuclear licensed site NGL will be the applicant. Safety is a material planning consideration.

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- 2.3.3 It is considered that the components of the Sizewell B Relocated Facilities Project would neither constitute a 'generating station' in itself, nor works forming 'part of the construction of a generating station', nor an 'extension of a generating station' (within the meaning of the Planning Act 2008 (as amended)) as it would not involve the construction of any of the buildings or structures containing elements that would generate electricity nor that are directly related to the process of generating electricity. As can be seen in the description of the proposed facilities set out in **Table 3.1**, the relocated facilities comprise only facilities ancillary to the process of electricity generation: office and administration facilities, storage, workshop, welfare, training, visitor and parking facilities. Therefore, these works can be consented through a town and county planning application, not as a Nationally Significant Infrastructure Project (NSIP) in its own right.
- 2.3.4 The Sizewell B Relocated Facilities Project would be undertaken in advance of development consent being secured to construct and operate a new nuclear power station at Sizewell C. Delivery of the Sizewell B Relocated Facilities Project would facilitate the Government policy objective of more rapid development of new nuclear power earlier than if the proposals were included as part of the application for development consent for the Sizewell C Project. The Sizewell B Relocated Facilities Project should be considered on its own merits.
- 2.3.5 The Sizewell C site is identified by Government within national policy (i.e. National Policy Statements EN-1 and EN-6) as being strategically suitable for the construction and operation of a new nuclear power station. NPS EN-1 states that there is an urgent need for low carbon forms of electricity and it is important that new nuclear power stations are constructed and start generating as soon as possible.
- 2.3.6 The principle of undertaking preliminary or preparatory works in relation to NSIPs in advance of an application for development consent is accepted and endorsed by Government. The Letter to Chief Planning Officers (Ref. 2.6) encouraged local authorities to consider applications for preliminary works in advance of full application for development consent for nuclear power stations. It is also supported by experience from the early works applications in connection with the Hinkley Point C site and proposals in connection with the Sizewell C Project at Aldhurst Farm Habitat Creation Scheme.
- 2.3.7 The statutory development plan will be the starting point in the consideration of a planning application for the Sizewell B Relocated Facilities Project. As such, SCDC will determine the planning application in accordance with the statutory development plan, unless material considerations indicate otherwise. The application for the Sizewell B Relocated Facilities Project will assess the proposals against the local plan, setting out the relative merits of the Project.
- 2.3.8 Development consent for the Sizewell C Project will be sought separately from the Secretary of State by NNB Generation Company (SZC) Limited. The application for the Sizewell C Project would include consideration of development which is either in-situ (i.e. baseline) or to be delivered (i.e. as part of the cumulative impact assessment).
- 2.3.9 In the event that the Sizewell B Relocated Facilities Project is implemented, but the Sizewell C Project is neither consented nor implemented, within a timescale agreed

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by SCDC, the land to the north of the Sizewell B station perimeter would be appropriately landscaped.

2.4 Related Assessments

2.4.1 In addition to the EIA, the proposed development would be subject to assessment pursuant to other environmental regulatory regimes as outlined below. The related assessments described below will be contained within reports separate to the ES. Notwithstanding, relevant information from the reports will inform and be included within the respective ES chapters (see **Section 8**).

a) Habitat Regulations Assessment

2.4.2 The European 'Habitats Directive' on the Conservation of Natural Habitats and Wild Flora and Fauna (92/43/EEC) (Ref. 2.7) and the European 'Birds Directive' on the conservation of wild birds (79/409/EEC – as amended by Directive 2009/147/EC) (Ref. 2.8) aim to put in place a network of habitats and species of European importance, and require the competent authorities of Member States to undertake 'Appropriate Assessment (AA)' of any plan or project not directly connected with or necessary to the management of a European site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects. This requirement has been transposed into UK law through 'The Conservation of Habitats and Species Regulations 2010' (as amended), referred to in this Scoping Report as the 'Habitats Regulations'.

2.4.3 Further details are provided in **Section 6.1 d)** Habitats Regulation Assessment of this report.

b) Flood Risk Assessment

2.4.4 As part of the proposed development is located within Flood Zones 2 and 3 (as identified on the Environment Agency Flood Maps for Planning (Ref. 2.9) and the proposed development exceeds 1ha, a separate Flood Risk Assessment (FRA) will be prepared in consultation with the Environment Agency and will accompany the planning application. In accordance with the NPPF, the FRA will assess the flood risk both to and from the proposed development and demonstrate how that flood risk, from all sources, would be managed over the lifetime of the site, taking into account the effects of climate change, including sea-level rise. In accordance with the NPPF, the FRA will consider potential sources of flooding from: fluvial; coastal; groundwater; surface water resulting from intense rainfall (pluvial) events; sewers (also resulting from intense pluvial events); and non-natural water bodies (i.e. canals and reservoirs), either from individual or multiple sources.

c) Water Framework Directive

2.4.5 European Council Directive 2000/60/EC establishing a framework for Community action in the field of water policy (the Water Framework Directive or WFD) (Ref. 2.10) was transposed into law in England and Wales by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (Ref. 2.11). Two 'daughter' directives, one aimed at protecting groundwater, the second aimed at reducing pollution of surface water (rivers, lakes, estuaries and coastal waters) by pollutants on a list of priority substances, have been adopted at European level. The

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requirements of the WFD will be taken into account in the planning of all new activities that may impact on the water environment.

- 2.4.6 To meet the requirements of the WFD, the competent authority (the Environment Agency) has set Environmental Objectives for each water body. A default objective in all surface water bodies is to prevent deterioration in the 'Chemical Status' and either the 'Ecological Status' (for natural water bodies) or the 'Ecological Potential' (for heavily modified or artificial water bodies). For groundwater bodies, the default objective is to prevent deterioration in 'Chemical Status' and 'Quantitative Status'.
- 2.4.7 There are two surface water bodies (described in **Section 6**) within or immediately downstream of the Site. Consultation with the Environment Agency will be undertaken to determine the requirement for a WFD Compliance Assessment to be undertaken as part of the EIA.

d) Transport Assessment

- 2.4.8 Suffolk County Council's (SCC) 2012 supplementary planning guidance Topic Paper 7 – Highways and Transport (Ref. 2.12) refers to the thresholds for Transport Assessments (TAs) and Travel Plans stated on the Department for Transport's (DfT's) website. However the DfT policies contained in the 2007 Guidance on Transport Assessment document (Ref. 2.13) have since been superseded by the NPPF and thus the decision on whether a TA or Transport Statement (TS) is required is one for the Council to make on a case-by-case basis.
- 2.4.9 The 2007 Guidance on Transport Assessment document contained indicative thresholds for the requirement of a TA or TS. Based on the net floor space and category of land use for which planning permission is being sought, an indicative decision as to the requirement for a TA or TS could be made.
- 2.4.10 At this stage the precise floor space requirements of the proposal have yet to be finalised. As described in **Section 3**, the proposed development primarily involves the relocation of existing facilities on a largely like for like basis, although in a number of cases, in order to meet current regulations and industry standards, there will be a requirement to increase the building area of some of the new facilities. Once the floor areas by use have been confirmed, the requirement for undertaking a TA will be agreed with SCDC and SCC.

e) Arboricultural Impact Assessment

- 2.4.11 To understand the implications of the proposed development on trees within the Site boundary an Arboricultural Impact Assessment will be undertaken. This will be based on an arboricultural survey in accordance with British Standard (BS) 5837: 2012 – Trees in relation to design, demolition and construction (Ref. 2.14).
- 2.4.12 The Arboricultural Impact Assessment will evaluate any direct and indirect effects of the proposed development and where necessary recommend mitigation. It will take into account the impacts of any tree loss required to implement the proposed development and any further activities proposed in the vicinity of the retained trees.

2.5 Permits and Other Consents

2.5.1 The proposed development would comply with all existing relevant NGL environmental permits, consents and licences. There may be a need to apply for other permissions prior to and during the works. As the programme of works and design are progressed, these permissions will be identified and scheduled in a timely manner to enable determination by the appropriate regulatory body. Any requirements of a granted permission will be provided to contractors undertaking work.

a) Nuclear Site Licence

2.5.2 The Nuclear Installations Act 1965 (as amended) and the Nuclear Installation Regulations 1971 set out the nuclear site licensing requirements for Sizewell B power station. The ONR is responsible for nuclear and conventional safety and issues nuclear site licences. Sizewell B has an extant Nuclear Site Licence dated 25 March 1996 (amended March 1999). The Environmental Permitting Regulations (England and Wales) 2010 (as amended) confirm the permitting requirements for Sizewell B power station and are regulated by the Environment Agency.

2.5.3 All necessary approvals and authorisations required by the Nuclear Site Licence in respect of design, construction and operation of the Relocated Facilities would be sought from ONR.

2.5.4 The Office for Nuclear Regulation Civil Nuclear Security (ONR CNS) Programme is responsible for approving security arrangements within the civil nuclear industry and regulates the security of:

- nuclear and other radioactive materials on civil licensed nuclear sites;
- nuclear materials off licensed sites;
- domestic transport of nuclear materials by road, rail and sea; and
- international transport of nuclear and other radioactive materials by UK flagged vessels; and
- sensitive nuclear information wherever it is held.

2.5.5 The CNS will require, for its approval, the submission of any amendment to the existing Sizewell B site security plan, for construction and operation, before the proposed development is brought into use.

3. PROPOSED DEVELOPMENT

3.1 Site Context

- 3.1.1 Sizewell B nuclear power station is situated on the Suffolk coast, north-east of Ipswich and south of Lowestoft. Sizewell B is located to the north of the Sizewell A nuclear power station, which is currently being decommissioned.
- 3.1.2 Sizewell B is expected to operate until 2035 with the potential of a lifetime extension for 20 years to 2055. Decommissioning would take 20 years.

3.2 Description of the Site

- 3.2.1 The Site (defined by the indicative development boundary in **Figure 1.2**) is approximately 39ha in area. The Site is located within the administrative area of SCDC, which is located within Suffolk County. The approximate Ordnance Survey Grid Reference for the centre of the Site is TM 47167 63488. The Site is largely flat with levels varying between approximately 5m and 10m, with the Sizewell B platform height at approximately 6.4m above ordnance datum (AOD).
- 3.2.2 The baseline environmental conditions are described in **Section 6** on a topic-by-topic basis.

a) Sensitive Environmental Receptors

- 3.2.3 Environmental receptors are described in detail within **Section 6**. The following key receptors have been identified and are described with reference to **Figure 3.1** and **Figure 3.2**.
- Human Receptors
 - Nearby residential communities in proximity to the Site include the hamlet of Sizewell located approximately 210m to the east of the development boundary and the town of Leiston, the eastern edge of which is located approximately 1.8km west of the Sizewell power station complex.
 - In addition, there are a small number of farms and holdings in the surrounding area, identified on **Figure 3.1**. The closest residential receptor (Rosary Cottages) is owned by NGL.
 - Workers at the Sizewell A and Sizewell B power stations and agricultural workers, fishermen, holiday homeowners and visitors to Sizewell Beach in the wider area.
 - Users of nearby Public Rights of Way (PRoW), including Sandlings Walk and Bridleway Route E-363/019/0 (hereafter referred to as 'Bridleway 19') located to the south (see **Figure 3.1**).
 - Ecological Receptors
 - There are a number of conservation designations of both European and UK significance located in proximity to the Site as shown in **Figure 3.1**.

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- The Sizewell Marshes Site of Special Scientific Interest (SSSI) is located immediately west of the majority of the Site and (in part) between Pillbox Field and Coronation Wood towards the south of the Site.
- The development boundary is located approximately 150m from the Minsmere to Walberswick Special Protection Area (SPA), Special Area of Conservation (SAC) and Ramsar site to the north; approximately 175m west of the Outer Thames SPA and approximately 650m north-east of Sandlings and Leiston Aldeburgh SPA.
- Landscape and Visual
 - The Site is located within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) and partially within the Suffolk Heritage Coast.
- Historic Environment
 - Structures of low significance associated with the existing Sizewell B power station.
 - Potential WWII military features of low significance which may survive within Coronation Wood.
 - Potential archaeological remains of low to medium significance in Pillbox Field.
 - Potential change to the setting of the pillbox in Pillbox Field.
- Hydrological / Flood Risk, Geological and Hydrogeological
 - The majority of the Site is located within Flood Zone 1, although parts of Pillbox Field and the area to the north to be used for stockpiling are partially within Flood Zones 2 and 3.
 - Sizewell Drain passes through a small section of the Site between Pillbox Field and Coronation Wood before flowing in a northerly direction along the western edge of the existing Sizewell power station complex.

3.2.4 These key environmental receptors are discussed further within **Section 6** of this report under the relevant topic heading.

3.3 Facilities to be Relocated

3.3.1 **Figure 3.3** shows the Sizewell B facilities that are to be relocated. The facilities have a broad range of functions including industrial, workplace, education, cultural and infrastructure.

3.3.2 Those that would be relocated from the area of land that is nominated for Sizewell C as a potentially suitable site for the development of new nuclear power are coloured purple in **Figure 3.3**. Those facilities, or areas of land, that would be impacted as a consequence of relocating the facilities from the north are coloured orange in **Figure 3.3**. A list of the facilities to be relocated is provided in **Table 3.1**.

3.4 Design Development

3.4.1 A number of option studies have been undertaken which sought to define the user requirements for the facilities to be relocated, identify site options and development scenarios in order to identify a preferred development option. A significant number of

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scenarios were evaluated against a series of criteria including safety, cost, programme, operations, planning and environmental considerations.

3.4.2 A sequential approach was applied to the siting of the facilities (given the limitation of available land) which sought to:

- rationalise the facilities by co-locating or combining compatible uses into new facilities wherever possible;
- relocate facilities to within the Sizewell B station fence as far as practicable;
- locate facilities in close proximity to Sizewell B within the Sizewell complex utilising the most suitable land, including exploring the potential re-use of Sizewell A land without conflicting with the Sizewell A decommissioning activities; and
- locate remaining facilities away from the Sizewell complex but only where their level of interaction with the Sizewell complex is less intensive and they can be located on suitable land.

3.4.3 The optioneering and design development process that has been followed will be presented in further detail in the ES as part of the consideration of alternatives, as described in **Section 4**. Further detail on the replacement facilities is provided below and illustrated in **Figure 3.4**.

3.5 Proposed Development

3.5.1 In summary, the proposed development comprises the construction of replacement facilities at locations within the existing Sizewell power station complex and to the south of the complex, followed by the demolition and removal of existing facilities.

3.5.2 Within the Sizewell B station site perimeter, a location has been identified for the new outage store and an outline development zone has been identified for the administration, storage, welfare and canteen facilities. Outside of the station site perimeter, locations have been identified for the training centre, visitor centre, laydown area, outage and operational car parking and a new circulatory access road.

3.5.3 It is NGL's intention that a planning application would be submitted to SCDC, for approval of detailed plans for the outage store, training centre, laydown area, operational and outage car parking and the access road, with outline plans for the remaining facilities (comprising the permanent visitor centre and administration, storage, welfare and canteen facilities) with detailed matters for these facilities brought forward in due course. A layout and preliminary design has been developed for the purposes of preparing this EIA Scoping Report. Whilst it is likely that there would be changes to elements of this preliminary design, there is sufficient information available to allow scoping of likely environmental effects to take place.

3.5.4 **Table 3.1** provides a schedule of the existing facilities to be relocated and proposed replacement facilities and infrastructure.

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Table 3.1: Schedule of facilities to be relocated and proposed facilities

Existing Facilities to be Relocated	Proposed Facilities	Location	Description of Proposed Facilities
Outage store Reactor coolant pump (RCP) motor (located in heavy store within part of the existing workshop and stores building)	Outage store	Inside Sizewell B Site Perimeter	The outage store would be relocated to the site of the oil and chemicals store, to the south of the Sizewell B turbine hall. The new outage store would include a basement and would be high enough to accommodate an internal crane. The height and external appearance of the facility would be in keeping with similar adjacent support buildings. The facility would be used for the storage of equipment and contractor accommodation (e.g. offices, mess facilities etc.) for during outage periods, and also to accommodate the spare RCP motor currently located within the heavy store (an on-site storage facility).
Outage office Projects office Outage portakabin city 2 Base area facility Civil workshop Civil store area Existing buildings currently located within the outline development zone including the station entrance, modular projects building 2, canteen, administration building and prefab projects building (1a and 1b).	The outline development zone would provide for the relocation of the administration, storage, welfare and canteen facilities.	Inside Sizewell B Site Perimeter	Further design work will clarify the proposed form and arrangement of the administration, storage, welfare and canteen facilities. Any new facilities would be in keeping with the height and appearance of the surrounding facilities.
Outage laydown – northern compound outage laydown hardstandings and scaffold store	Laydown area	Outside the Sizewell B Site Perimeter. Located at the southern end of Coronation Wood.	The approximately 12,000m ² laydown area comprises a general storage facility for operational use primarily during outages. The facility would include open and covered areas. Covered areas would include workshops and single storey storage buildings. Outwith outages, the area would be used flexibly for operational

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Existing Facilities to be Relocated	Proposed Facilities	Location	Description of Proposed Facilities
			activities including maintenance, storage and car parking as required.
Technical training and 'pool car' car park	Operational car park	Outside the Sizewell B site perimeter. Located at northern end of Coronation Wood.	The technical training and 'pool car' car park provides 63 car parking spaces for operational use. As this car park would require relocation, replacement operational car parking would be provided by an approximate 100 space surface level car park in Coronation Wood. In order to construct the operational car park the existing (now disused) Sizewell A reservoir tanks (located to the west of Coronation Wood) would need to be removed.
Technical training centre	Training centre	Outside the Sizewell B site perimeter. Located at northern end of Coronation Wood.	The new training centre for Sizewell B would combine the existing training arrangements into a single building providing training/classrooms, specialist training facilities, workshops and offices. The facility would be located at the north end of Coronation Wood, adjacent to a new visitor centre. The building design would be in keeping with the appearance of similar existing Sizewell B facilities.
Operations training centre			
Additional training facilities			
Sizewell B visitor centre	Visitor centre	Outside the Sizewell B Site Perimeter. Located within the existing technical training centre on a temporary basis, until a permanent facility is constructed at the north end of Coronation Wood.	The temporary Sizewell B visitor centre would temporarily be located within the existing technical training centre before later being replaced with a permanent, modern educational facility for visitors, including school groups. The new building would be located at the north end of Coronation Wood, adjacent to the new training centre and comprise exhibition spaces, viewing area, auditorium, classrooms and offices etc. The architectural approach would be similar to the adjacent training centre.
–	Western access road	Outside the Sizewell B perimeter. A linear route would run to the south and west of Coronation Wood.	A new access road is proposed adjacent to Coronation Wood. The road would follow the alignment of the track to the south of Coronation Wood and follow a line past the existing Sizewell A reservoir tanks joining into the existing access road at the roundabout. The new western access road would reduce the interface between pedestrians and vehicles on the main access road around the

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Existing Facilities to be Relocated	Proposed Facilities	Location	Description of Proposed Facilities
			Sizewell B entrance and thus improve safety.
North car park	Outage car park	Outside the Sizewell B Site Perimeter. Located at the northern end of Pillbox Field with associated vehicular and pedestrian access.	<p>Current outage parking at the Sizewell B site comprises the north car park, which has 576 car parking spaces.</p> <p>As the north car park would require relocation, an approximate 576 space surface level 'park and walk' facility would be constructed at the northern end of Pillbox Field for use in outages only (both scheduled, which take place for an approximate three month period every 18 months, and unexpected outages. During this time the number of staff working on the Site increases from approximately 770 to approximately 1,900).</p> <p>It is envisaged that cars would access the outage car park from Sizewell Gap to the south via a new route off Sandy Lane and, once parked, contractors would walk to the power station via a pedestrian walkway and crossing. Design work on the outage car park access arrangements is ongoing.</p>

a) Area Requirements

3.5.5 The basic premise for the relocated facilities is that the new facilities should replicate the area provision on a like-for-like basis. It is, however, clear that in some cases, in order to meet current regulations and industry standards, there will be a requirement to increase the building area of a number of the new facilities. The areas of increase and the buildings to which they relate will be confirmed as the design progresses and will be set out within the ES.

b) Access

3.5.6 The main site entrance is via a private road running northwards from a priority junction off Sizewell Gap road. A network of internal roads connects the various parts of the Site. The proposed western access road would form part of the internal vehicle circulation system.

3.5.7 The outage car park is envisaged to be accessed via a new route off Sandy Lane from Sizewell Gap. This access would provide vehicular access to the outage car park only and pedestrians would access the power station via a walkway and pedestrian crossing heading north across Sizewell Drain. Design work on the outage car park access arrangements is ongoing.

c) Landscaping

3.5.8 The landscape and planting proposals will be developed in conjunction with the architecture and civils work to ensure an integrated design. The proposals will be informed by the EIA and in consultation with the relevant stakeholders, to deliver an appropriate level of screening and ecological value.

3.5.9 Due to nuclear security requirements, there is limited scope for incorporating soft landscape treatment, in particular planting, into the design proposals within the site perimeter. Planting and surface treatment would be incorporated into the design around the visitor centre and training centre, and where reasonably practicable elsewhere.

3.6 Construction of the Proposed Development

a) Construction of the Replacement Facilities

3.6.1 Construction of the relocated facilities would comprise the following activities:

- vegetation and tree removal, including Coronation Wood;
- establishment of the site boundaries including hoardings and site access;
- construction of a western access road to provide a circulatory system for construction and operational traffic;
- isolation and relocation of services above and below ground level, as required;
- establishment of new service connections including mains power, telecommunications, data networks, station fire and emergency alarm network, and mains water supply;
- removal of the two disused Sizewell A reservoirs;

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- earthworks including site preparation, levelling and excavations and temporary stockpiling of re-usable material (temporary stockpiling would occur within an area to the north of the Site that was previously used for the construction of Sizewell B and has since been restored, and within Pillbox Field for the cut material during the construction of the outage car park prior to backfilling/levelling activities);
- substructure works including drainage connections, service connections and ground floor slabs (it is not anticipated that any piling is required);
- building/facility construction including establishment of steel frame and concrete structures, use of pre-cast concrete, cladding and roofing;
- fit-out of facilities;
- demolition of existing facilities/buildings and removal of materials arising; and
- planting and screening, as appropriate.

3.6.2 Construction of the pedestrian walkway and crossing between Pillbox Field and Sizewell B may require access from within the easternmost part of the western section of the Sizewell Marshes SSSI.

3.6.3 It is anticipated that construction and demolition associated with the proposed development would take place over an approximate 54 month period, on a phased basis. The duration of the site works reflects the sequencing of the construction, relocation and demolition activities required.

3.6.4 The construction and demolition phase is anticipated to have a peak workforce of 175 personnel and a maximum of 70 heavy goods vehicles (HGVs) (equivalent to 140 movements) per day at peak. Over the course of the construction and demolition phase, the average number of workforce personnel and HGV movements would be significantly lower than these numbers.

3.6.5 Working hours (excluding emergency or maintenance works) are anticipated to be between 07:00 to 19:00 hours from Monday to Saturday. A 24-hour, 7 days a week security presence on site would be required. A number of activities (e.g. continuous concrete pouring and steelworks) would require 24-hour working and these would be defined and agreed with the local planning authority (SCDC) in advance.

b) Restoration of Land

3.6.6 In the event that the Sizewell C Project is not brought forward, the land from which the Sizewell B facilities have been removed would be landscaped in keeping with the surrounding landscape character.

c) Sustainability in Construction

3.6.7 EDF Energy's mission is 'Driving progress for people' delivered through the company's 'Better Energy Ambitions' which form the plan for a sustainable business with the aim of being a successful and responsible, long-term energy business, trusted by customers and powering a thriving society and a healthy environment. The six ambitions are:

- to achieve Zero Harm to people;
- to be the best and most trusted for customers;

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- to power society without costing the Earth;
- to deliver safe, secure and responsible nuclear electricity;
- to achieve strong financial and ethical performance; and
- to empower our people to be a force for good.

3.6.8 NGL will deliver this Project in a sustainable way. The development, design and build of the Sizewell B Relocated Facilities would be undertaken in a manner consistent with safety, reliability and sustainability standards. NGL would embed sustainable construction practices, driving innovation and best practice, to reduce the impact on the environment.

d) Operation of Replacement Facilities

3.6.9 Operating regimes and activities associated with the new facilities would be the same as those to be adopted when the existing facilities are removed. The facilities would have a design life of 50 years.

3.7 Environmental Management

3.7.1 NGL has a well-established Integrated Management System (IMS) of which environmental management is a part. All work activities managed by NGL would take place under these arrangements.

3.7.2 The IMS also provides the framework for environmental management as part of the operation of the Sizewell B nuclear power station. Any operational activities would be undertaken in accordance with the existing NGL arrangements at Sizewell B. An overview of the IMS will be provided in the ES.

a) Waste Management

3.7.3 The management of waste will be described in the proposed development chapter of the ES. The ES will identify types and quantities of demolition, construction and operational waste.

3.7.4 During the construction and demolition phases, appropriate construction management arrangements following industry best practice would manage any waste produced on site. During operation, waste would be managed using existing site procedures and processes. Throughout all phases of the development waste would be managed in accordance with the waste hierarchy and proximity principle by:

- prevention and reduction of the volumes of waste produced;
- maximisation of re-use and recycling within the wider development and use of local/regional facilities; and
- minimisation of the impact upon the existing waste management infrastructure.

3.7.5 Adherence to these procedures and processes would ensure waste streams are managed in accordance with applicable UK legislation, policy and guidance and NGL's aims and objectives.

4. CONSIDERATION OF ALTERNATIVES

- 4.1.1 Schedule 4 of the EIA Regulations states that an ES should include ‘*an outline of the main alternatives studied by the applicant and an indication of the main reasons for the applicant’s choice, taking into account the environmental effects.*’
- 4.1.2 A number of optioneering studies have been undertaken which sought to define the user requirements for the facilities to be relocated, identify site options and development scenarios in order to reach a preferred development option. Following that, a significant number of scenarios have been evaluated and have considered the use of land within Sizewell B, other NGL owned land in proximity to the power station, and Sizewell A. The studies assessed potential location opportunities against a series of criteria, which included consideration of safety, operations, construction feasibility, environmental impact and provisional costs and programme implications.
- 4.1.3 Development of the proposed scheme design is described further in **Section 3**. It has followed a sequential approach to the siting of facilities, which sought to: co-locate or rationalise compatible uses into new combined facilities wherever possible; relocate facilities to within the Sizewell B station fence as far as practicable; and locate facilities in close proximity to Sizewell B within the Sizewell power station complex wherever possible.
- 4.1.4 Further studies are ongoing to determine the final design and layout of each facility. Design and siting alternatives will be considered further during the next phase of design in order to identify an optimal arrangement. The consideration of alternatives is primarily dependent on the use and function of each element of the proposed development. The ES will describe the consideration of alternatives, including:
- siting alternatives;
 - design alternatives, including the provision of individual replacement facilities versus combined facilities; and
 - treatment of land following removal of buildings.

5. EIA APPROACH AND METHODOLOGY

5.1 Scoping

- 5.1.1 Establishing the scope of the environmental assessment in a rigorous and transparent manner is a key step in the assessment process. Consultation is an essential element of this process. Therefore, this Scoping Report has been prepared to provide stakeholders with sufficient information to form an opinion on the adequacy of the proposed scope of assessment and to ensure that 'likely significant effects' will be addressed by the EIA.
- 5.1.2 This section describes the overarching EIA methodology and the approach to the environmental topic assessment chapters in the ES.

5.2 Overarching Approach to the EIA

- 5.2.1 Schedule 4 of the EIA Regulations requires the ES to include a description of the *'likely significant effects of the development on the environment. This should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development'*, as well as a description of the forecasting methods used to assess the effects on the environment. Schedule 4 also identifies a number of aspects of the environment that should be considered, namely *'population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the interrelationship between the above factors'*. A description of how these aspects will be considered and assessed in the EIA is included in the following sections.
- 5.2.2 Matters that are scoped into the EIA are judged likely, without effective mitigation, to have the potential to cause significant effects. Matters that are scoped out of the EIA are those which it is considered are not likely to lead to significant effects, regardless of mitigation. Where insufficient information is available in relation to a particular matter to make a reasonable judgement at this stage, a precautionary approach is adopted and that matter is scoped in. The decision to scope out matters is based upon factors such as a high degree of development-receptor separation, the lack of impact pathways or the known low value or low sensitivity of impacted resources/receptors.
- 5.2.3 Decommissioning of Sizewell B will be subject to an EIA under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (as amended) at the point of end of generation. Therefore, decommissioning of the Sizewell B Relocated Facilities Project will not be considered and presented as part of the ES to which this Scoping Report relates.

5.3 Determination of the Scope

a) Spatial Scope

- 5.3.1 A clear definition of the study area for the EIA is a key part of the process. The geographical extent of the study area varies depending on the environmental topic

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and specific receptors under consideration for that topic. For each topic the study area will be defined in the ES and will be of sufficient size to encompass the spatial extent over which impacts relevant to that topic and the related receptors might occur.

b) Temporal Scope

- 5.3.2 The assessment will have regard to the Project programme and will evaluate the environmental effects of the proposed development at the key stages of construction and operation. These are, where appropriate, then assessed against the situation prevailing before the proposed development would commence (i.e. the current baseline).

c) Scoping of Issues

- 5.3.3 The emphasis of Schedule 4 of the EIA Regulations is on the "main" or "significant" environmental effects to which a development is likely to give rise. The ES should be proportionate and not be any longer than is necessary to assess properly those effects. This Scoping Report scopes out a number of environmental topics on the basis of the current design (see **Section 7**). The ES will further scope out environmental receptors and effects on the basis of the nature and scale of the final proposed development and consultation. Justification for issues scoped out will be provided.

5.4 Assessment of Effects and Determining Significance

- 5.4.1 Schedule 4 of the EIA Regulations requires that a description of the likely significant effects is provided in the ES. However, it should be noted that in the context of the general methodology used for this assessment the terms *'impact'* and *'effect'* are distinctly different, whereby the impacts of the proposed development may or may not result in significant effects on the environment depending on the sensitivity or value of the receptor.
- 5.4.2 For consistency, and in an attempt to allow comparison between topics, the methodology described in this section will be applied where appropriate. The methodology adopted by the environmental topics is designed to consider whether impacts of the proposed development (from the construction and demolition phase and operation phase, where appropriate) would have an effect on any resources or receptors.
- 5.4.3 Assessments broadly consider the magnitude of impacts and value/sensitivity of resources/receptors that could be affected in order to classify effects. The classification of effects requires consideration of:
- whether the impacts are beneficial or adverse;
 - impact duration (short, medium or long-term);
 - impact nature (direct or indirect, reversible or irreversible);
 - whether the impacts are permanent or temporary;
 - the extent and complexity of the impact; and
 - whether a particular impact occurs in isolation or is cumulative or interactive with another impact.

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5.4.4 For each environmental topic which fully or in part utilises the methodology, the categories of resource/receptor sensitivity (**Table 5.1**) and magnitude of impact (**Table 5.2**) will be appropriately described and defined. The following sections provide the generic criteria for the definition of resource/receptor sensitivity, impact magnitude and scale of effect. Within **Section 6** of this EIA Scoping Report, each environmental topic area provides further detail on the approach to the assessment and references the standards and guidelines that will be used for the definition of impact magnitude and resource/receptor sensitivity. Environmental topics will broadly follow the approach set out in the following sections and any deviations from this approach are explained and justified where appropriate.

a) Receptor Sensitivity

5.4.5 **Table 5.1** sets out the generic guidelines for the assessment of sensitivity.

Table 5.1: Generic guidelines for the assessment of sensitivity

Value/ sensitivity	Guidelines
High	<p>Value: Feature/receptor possesses key characteristics which contribute significantly to the distinctiveness, rarity and character of the site/receptor (e.g. designated features of international/national importance, such as World Heritage Sites, Areas of Outstanding Natural Beauty (AONB), Special Areas of Conservation (SACs), Special Protection Area (SPAs), Ramsar sites, Sites of Special Scientific Interest (SSSIs), Scheduled Ancient Monuments, Air Quality Management Areas, Grade I and Grade II* Listed Buildings).</p> <p>Sensitivity: Feature/receptor has a very low capacity to accommodate the proposed form of change.</p>
Medium	<p>Value: Feature/receptor possesses key characteristics which contribute significantly to the distinctiveness and character of the site/receptor (e.g. designated features of regional or county importance, such as County Wildlife Sites (CWSs), Local Biodiversity Action Plans (BAP), Conservation Areas, Grade II Listed Buildings, Heritage Coast and Special Landscape Areas etc.).</p> <p>Sensitivity: Feature/receptor has a low capacity to accommodate the proposed form of change.</p>
Low	<p>Value: Feature/receptor only possesses characteristics which are locally significant. Feature/receptor not designated or only designated at a district or local level (e.g. local nature reserve, locally Listed Buildings).</p> <p>Sensitivity: Feature/receptor has some tolerance to accommodate the proposed change.</p>
Very Low	<p>Value: Feature/receptor characteristics do not make a significant contribution to local character or distinctiveness. Feature/receptor not designated.</p> <p>Sensitivity: Feature/receptor is generally tolerant and can accommodate the proposed change.</p>

b) Magnitude

5.4.6 **Table 5.2** sets out the generic guidelines for the assessment of magnitude.

Table 5.2: Generic guidelines for the assessment of magnitude

Magnitude	Guidelines
High	Large-scale changes over the whole development area to key characteristics or features of the particular environmental aspect's character or distinctiveness.
Medium	Medium-scale changes over the majority of the development area to key characteristics or features of the particular environmental aspect's character or distinctiveness.
Low	Noticeable but small-scale changes over part of the development area, to key characteristics or features of the particular environmental aspect's character or distinctiveness.
Very Low	Noticeable, but very small-scale change, or barely discernible changes, over a small part of the development area, to key characteristics or features of the particular environmental aspect's character or distinctiveness.

5.4.7 Broadly, short to medium-term temporary effects are considered to be those associated with the construction and demolition phase. Long-term effects are those associated with the operational phase. It should be noted that these are generic timeframes. Each topic will consider if these are appropriate for the effects and sensitive receptors under consideration.

c) Significance

5.4.8 **Table 5.3** details the matrix used for the classification of effects and **Table 5.4** sets out the generic definitions of effect.

Table 5.3: Classification of effects

Magnitude	Value and sensitivity of receptor			
	Very Low	Low	Medium	High
Very low	Negligible	Negligible	Minor	Minor
Low	Negligible	Minor	Minor	Moderate
Medium	Minor	Minor	Moderate	Major
High	Minor	Moderate	Major	Major

Table 5.4: Generic effect definitions

Effect	Description
Major	Effects, both adverse and beneficial, which are likely to be important considerations at a national to regional level because they contribute to achieving national/regional objectives, or, which are likely to result in exceedance of statutory objectives and/or breaches of legislation.
Moderate	Effects that are likely to be important considerations at a regional and local level.
Minor	Effects that could be important considerations at a local level.
Negligible	An effect that is likely to have a negligible or neutral influence, irrespective of other effects.

5.4.9 Following the classification of an effect using this methodology, a clear statement is then made as to whether that effect would be ‘significant’ or ‘not significant’. As a general rule, major and moderate effects are considered to be significant, whilst minor and negligible effects are considered to be not significant (as detailed by the shading in **Table 5.3**). However, professional judgement will also be applied where necessary, including taking account of whether the effect is permanent or temporary.

5.5 Mitigation and Residual Effects

5.5.1 The ES will include a description of the measures envisaged to prevent, reduce and, where relevant, offset any significant adverse effects. The approach adopted will take the form of a hierarchy, whereby priority is given to preventing effects, and then (if this is not possible) to reducing or abating them followed, if necessary, through repair (restoring or reinstating), replacement or compensation. Each of these means of reducing potentially significant effects falls under the broad heading of ‘mitigation’.

5.5.2 Mitigation opportunities will be identified throughout the evolution of the design of the proposed development and the EIA process, whereby significant adverse effects will be fed back into the design process to verify whether they can be avoided or otherwise mitigated in accordance with the hierarchy. Where it is possible at this stage of the design process, mitigation opportunities have been identified in the relevant topic sections.

5.5.3 As the design is currently under development, it is possible to incorporate a number of mitigation measures into the scheme design. These measures are referred to as ‘primary’ mitigation measures (also known as ‘embedded’ or ‘incorporated’ mitigation) and ‘tertiary’ mitigation measures (which are those that are required regardless of any EIA, as it is imposed, for example, as a result of legislative requirements and/or standard sectoral practices).

5.5.4 Once mitigation is part of the design, impacts and effects will be assessed from that point and not before. Not only will this allow the EIA to avoid considering impact assessment scenarios that are unrealistic in practice, but will also allow the benefits of the iterative design process to be realised.

5.5.5 Following the impact assessment process, ‘secondary’ mitigation measures (which are often referred to as ‘additional mitigation’) will be identified. Secondary measures

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are intended to address identified likely significant adverse effects but would not be built in to the final design.

- 5.5.6 The ES will then report on the anticipated effects of the proposed development following the implementation of mitigation measures. These are known as ‘residual effects’. A clear statement will be made as to whether the residual effects are ‘significant’ or ‘not significant’.

5.6 Inter-relationships and Cumulative Effects

- 5.6.1 As required by the EIA Regulations, the assessment will also have regard to inter-relationships and cumulative effects. Whilst the technical chapters will address the environmental effects for each environmental discipline, the ES will also consider:

- Inter-relationships that occur between the individual environmental effects of the proposed development and have the potential to combine together on resources/receptors and lead to significant effects. The scoping work undertaken indicates that potential inter-relationship effects may occur as a result of combined traffic, noise, landscape and visual, amenity and recreation, ecological, historic environment, land quality and hydrogeology, and surface water and flood risk effects. The assessments undertaken as part of the EIA will determine the extent to which inter-relationships would give rise to significant effects. Inter-relationship effects will be described within the relevant ES topic chapters.
- Cumulative effects that arise as a result of the proposed development in combination with other reasonably foreseeable large scale developments and/or projects in the vicinity of the site.

- 5.6.2 To inform the assessment of cumulative effects, the maximum geographical area around the Site where there is potential for impacts to occur will be identified through the derivation of a Zone of Influence (ZOI) for each of the relevant environmental topic areas. A cumulative assessment will then be undertaken based on the extent of likely interaction between the proposed development and the schemes considered. The cumulative assessment will be presented in a standalone chapter within the ES (see **Section 8**).

- 5.6.3 Anticipated projects that will be considered within the cumulative assessment include the following, to be agreed with SCDC:

- The Galloper Wind Farm: consideration will be given to the construction of the onshore export cable route and the proposed sub-station to be located adjacent to the existing Greater Gabbard sub-station to the west of the Site.
- Sizewell A Decommissioning: although current decommissioning activities are limited, consideration will be given to the potential for additive cumulative effects.
- Sizewell C Nuclear Power Station: although the application for development consent has not been submitted, consideration will be given to the potential for additive cumulative effects to the extent possible based on the information available at the time of undertaking the assessment.

5.7 EIA Assumptions and Limitations

5.7.1 Assumptions specific to each topic are detailed in the relevant sections of this EIA Scoping Report. Examples include: future traffic growth scenarios; re-use of material excavated from the site wherever possible; derivation of the origin of workforce related traffic movements; and derivation of water quality conditions based on desk-top data and targeted sampling campaigns.

5.7.2 It is anticipated that the EIA will be subject to limitations, including:

- baseline conditions (in relation to the existing site) are specific to each technical aspect of the EIA and are considered to be accurate at the time of the physical surveys but, due to the dynamic nature of the environment, conditions may change over time; and
- the assessment of cumulative impacts is reliant on the availability of information relating to the identified cumulative schemes (whether consented or under development).

5.8 Consultation

5.8.1 NGL is committed to engaging with key stakeholders and the local community on its proposals. Initial engagement with SCDC has taken place to inform them of the progress of the proposed scheme. Pre-application consultation with statutory consultees including the Environment Agency, Natural England and Historic England will be undertaken during the course of the pre-application period in order to consult on:

- the scope of the impact assessment (where further discussion is required and following receipt of SCDC's Scoping Opinion); and
- the assessment of potential environmental effects and mitigation measures, where required.

5.8.2 While there is no statutory requirement for applicants to undertake community consultation, SCDC's Statement of Community Involvement (adopted September 2014) encourages applicants to undertake pre-application consultation with the community. NGL will seek to publicise the proposals and engage with the local community close to Sizewell prior to submission of an application.

6. TOPICS SCOPED IN

6.1 Terrestrial Ecology

a) Baseline Conditions

6.1.1 The baseline conditions are described for the area of land within and adjacent to the Site boundary; areas and resources that may be affected by the identified activities arising from the whole lifespan of the Project are also considered. Together these comprise the Zone of Influence (Zol) of the proposals.

6.1.2 The following sections describe the potential receptors within the Zol in more detail. Receptors have been considered within areas of the Site boundary that are not already developed and their immediate environs, on the basis of their legislative protection, conservation status and their status/distribution within this part of the estate, based on desk study information and previous work undertaken over a number of years.

i. Designated sites

6.1.3 European and nationally-designated sites within 10km of the Site boundary are listed in **Table 6.1**. The footprints and boundaries of sites within 2km of the Site boundary are shown on **Figure 3.1**.

Table 6.1: Ecological statutory designated sites within 10km of the Site

Site name and location	Description
<p>Minsmere to Walberswick Heaths and Marshes SPA, SAC and Ramsar site</p> <p>Located approximately 0.15km to the north of the proposed development</p>	<p>This area has been identified as a Ramsar site as it supports a diverse range of wetland bird species in nationally important numbers. The SPA supports bird populations of European importance, including breeding populations of marsh harrier (<i>Circus aeruginosus</i>), avocet (<i>Recurvirostra avosetta</i>) and little tern (<i>Sterna albifrons</i>), over-wintering gadwall (<i>Anas strepera</i>) and white-fronted goose (<i>Anser albifrons</i>), as well as migratory populations of teal (<i>Anas crecca</i>), gadwall and shoveler (<i>Anas clypeata</i>) during the breeding season. The habitats that are a primary reason for selection of the SAC are 'annual vegetation of drift lines' and 'European dry heaths', whilst 'perennial vegetation of stony banks' are a qualifying feature of the site.</p>
<p>Sandlings SPA</p> <p>Located approximately 0.65km south-west of the proposed development boundary</p>	<p>The Sandlings SPA supports populations of European importance of both nightjar (<i>Caprimulgus europaeus</i>) and woodlark (<i>Lullula arborea</i>).</p>
<p>Alde-Ore Estuary SPA and Ramsar and Alde-Ore & Butley Estuaries SAC</p> <p>Located more than 5km south of the proposed development boundary</p>	<p>The Alde-Ore Estuary has been identified as a Ramsar site for its diverse and nationally important wetland bird species, and as an SPA because it supports bird populations of European importance, including breeding populations of avocet, little tern and sandwich tern (<i>Sterna sandvicensis</i>), and over-wintering ruff (<i>Philomachus pugnax</i>) and avocet. The site also supports important migratory populations of lesser black-backed gull (<i>Larus fuscus</i>) during the breeding season and redshank (<i>Tringa totanus</i>) during the winter. The primary reason for the SAC designation is the estuary habitat; intertidal mudflats and sandflats and Atlantic salt meadow habitats are also qualifying</p>

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Site name and location	Description
	features.
Outer Thames Estuary SPA Includes the area of open sea adjacent to the eastern boundary of Sizewell B	The Outer Thames Estuary SPA qualifies by supporting populations of European importance of red-throated diver (<i>Gavia stellata</i>) during the winter. The addition of the little tern (<i>Sternula albifrons</i>) and common tern (<i>Sterna hirundo</i>) populations as qualifying features is currently under consultation.
Orfordness to Shingle Street SAC Located over 8km south of the proposed development boundary	The habitats that are a primary reason for selection of this site are 'coastal lagoons', 'annual vegetation of drift lines' and 'perennial vegetation of stony banks'.
Minsmere to Walberswick Heaths and Marshes SSSI Located approximately 0.15km to the north of the proposed development boundary	This SSSI contains a complex series of habitats, notably mudflats, shingle beach, reedbeds, heathland and grazing marsh. These combine to create an area of exceptional scientific interest that supports a diverse breeding and wintering bird assemblage and a diverse range of invertebrates.
Sizewell Marshes SSSI Located adjacent the proposed development, along the western edge of the majority of the Site and (in part) between Pillbox Field and Coronation Wood towards the south of the Site	This SSSI is of national importance for the diverse habitats including: lowland unimproved wet meadow, reedbed and a ditch network supporting a diverse aquatic plant assemblage. Associated with the wet meadows are outstanding assemblages of invertebrates and breeding birds, along with several nationally scarce plant species.
Leiston to Aldeburgh SSSI Located approximately 0.65km south-west of the proposed development boundary	This SSSI contains a rich mosaic of habitats, including acid grassland, heath, scrub, woodland, fen, open water and vegetated shingle.

SPA: Special Protection Area; SAC: Special Area of Conservation; SSSI: Site of Special Scientific Interest.

- 6.1.4 On the basis of the nature of the proposed development (much of which would be located on existing hardstanding), its distance to each of the sites, and their qualifying features, the following sites are potential receptors within the Zol of the proposed development: Sizewell Marshes SSSI; Minsmere to Walberswick Heaths and Marshes SPA, SAC, Ramsar site and SSSI; the Outer Thames Estuary SPA; and the Sandlings SPA.
- 6.1.5 The three SPA sites are located within 1km of the proposed relocated facilities' footprints, and there is the potential for indirect impacts through the use of the wider landscape by the species for which the SPA is designated.
- 6.1.6 The Sizewell Marshes SSSI is located to the west of Sizewell B station and borders the proposed relocated facilities' footprint along the western boundary and (in part) between Coronation Wood and Pillbox Field (see **Figure 3.1**). It comprises a large

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area of lowland, unimproved species-rich wet meadows, located in a low-lying basin of deep fen peat. The site also consists of an extensive network of ditches and has a permanently high water table so the area is prone to flooding. The SSSI is designated for the plant communities' present including fen meadow, reedbed and ditches supporting diverse aquatic vegetation, outstanding assemblages of invertebrates and breeding birds which use this habitat, as well as the presence of several nationally scarce plant species (Ref. 6.1).

- 6.1.7 The most recent assessment (undertaken in September 2009) of the Sizewell Marshes SSSI found it to be in favourable conservation status (Ref. 6.2). The Sizewell Marshes SSSI is considered to be sensitive to fluctuations in water, silt and nutrient levels, which may have adverse impacts upon the habitats and/or species assemblages for which it is designated.
- 6.1.8 There are a number of non-statutory designated County Wildlife Sites (CWS) within 3km as follows:
- Minsmere South Levels CWS – supports an area of lowland heath;
 - Sizewell Levels and Associated Areas CWS – woodland, plantation, wet meadow, osier beds and scrub;
 - Leiston Common CWS – an area of lowland heath;
 - Suffolk Shingle Beaches CWS – supports coastal sand and shingle habitats;
 - Dower House CWS – cliff-top unimproved dry acid/dry maritime grassland;
 - Aldringham to Aldeburgh Disused Railway Line CWS – a section of disused railway line which supports a species-diverse flora; and
 - Rigs associated with the Sizewell A and B Stations CWS – supports a breeding colony of kittiwake (*Rissa tridactyla*).
- 6.1.9 On the basis of the nature of the proposed development (much of which would be located on existing hardstanding), its distance to each of the sites, and their overlap with the statutory designated sites above, the following sites are potential receptors within the Zol of the proposed development: Minsmere South Levels CWS and the Sizewell Levels and Associated Areas CWS.

ii. Plants and Habitats

- 6.1.10 Coronation Wood, the proposed location of the new visitor centre, training centre, laydown area, operational car park and part of the western access road, has a mix of semi-mature and mature plantation pine which dominate the woodland interior with mature broadleaf trees around the eastern, southern and south-western edges. Species include Pedunculate Oak (*Quercus robur*), Beech (*Fagus sylvatica*), Sycamore (*Acer pseudoplatanus*), Silver Birch (*Betula pendula*), Sweet Chestnut (*Castanea sativa*), Cherry (*Prunus* spp.) and Elm (*Ulmus* spp.) as well as Corsican Pine (*Pinus nigra* var. *maritima*), Scots pine (*Pinus sylvestris*) and Giant Fir (*Abies grandis*). There is little understorey, and ground flora has been suppressed due to a lack of light from the canopy and the depth of pine needles. The woodland is thus species-poor and, as a whole, of limited ecological value. A walkover survey of Coronation Wood to identify any ecological constraints was undertaken in September 2014.

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- 6.1.11 A further walkover survey of the land west of Coronation Wood was undertaken between August and October 2015 to include areas of the proposed development that had not previously been surveyed and to provide an update to survey work previously undertaken. The ES will describe the survey results, with a summary provided below for the purposes of Scoping.
- 6.1.12 On the northern and western boundary of Coronation Wood an open sandy area supports short sward grassland, which is dominated by Common Bent (*Agrostis capillaris*) and Sheep's Fescue (*Festuca ovina*), together with patches of dense scrub consisting of Gorse (*Ulex europaeus*), Blackthorn (*Prunus spinosa*) and Hawthorn (*Crataegus monogyna*). Part of this area contains two disused, partially underground reservoirs, which supports short grass and ruderal weeds over much of the structures' surface, with longer grass and bracken/bramble scrub around the margins. The slopes of the platform were dominated by dense bracken and scrub which slopes down to an Alder (*Alnus glutinosa*) lined ditch forming the edge of Sizewell Marshes SSSI.
- 6.1.13 The location proposed for stockpiling during the construction of the proposed development is to the north of Sizewell B station, within an area that was previously used for the construction of Sizewell B that has since been restored. The north-west boundary borders the Sizewell Marshes SSSI. This area comprises species-poor grassland and landscape plantation (two linear tree belts and scrub planting on the coastal edge).
- 6.1.14 Pillbox Field, the proposed location of the outage car park and associated pedestrian and vehicular access, comprises former arable farmland that has been allowed to revert to grassland. The Phase 1 survey undertaken in September 2015 did not identify the presence of any plants of notable value. An area of mixed plantation and semi-natural broadleaved woodland is located on the eastern edge of this field.
- 6.1.15 A stand of the non-native highly invasive plant Indian (also known as Himalayan) Balsam (*Impatiens glandulifera*) was identified growing in the gateway of the field immediately north of Pillbox Field. Indian (Himalayan) Balsam is listed on Schedule 9 of the Wildlife and Countryside Act (1981, as amended) and it is an offence to encourage or facilitate the spread of the plant.
- 6.1.16 A pedestrian access track is proposed to link the outage car park and power station. This area consists primarily of species-rich marshy grassland.

iii. Invertebrates

- 6.1.17 Sizewell Marshes SSSI, located immediately west of the majority of the Site and between Pillbox Field and Coronation Wood towards the south of the Site, is of interest for its invertebrate fauna, supporting a wide range of taxa and many nationally rare or scarce species. These include terrestrial and aquatic beetles (*Coleoptera*), flies (*Diptera*), moths (*Lepidoptera*), dragonflies (*Odonata*) and spiders (*Araneae*).
- 6.1.18 In particular, the ditches immediately to the west of the Site boundary have been found to support a number of important species, including two Red Data Book Category 2 (RDB2) soldierflies (*Odontomyia ornata* and *O. argentata*) and three

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nationally scarce species: the beetle *Ochthebius marinus*, the crane fly *Limonia ventralis* and the soldierfly *Vanoyia tenuicornis*.

- 6.1.19 The only habitat within the indicative development boundary that has the potential to be of value to invertebrates is the area of scrubby grassland underneath the power lines to the west of Coronation Wood. Coronation Wood and Pillbox Field do not support any habitat likely to be of particular importance to invertebrates, and the area to the north of Sizewell B station (which is proposed for stockpiling during the construction period) comprises species-poor grassland and landscape plantation which are also likely to be of limited value for invertebrates.

iv. Reptiles

- 6.1.20 Reptile surveys of Coronation Wood and suitable habitats bordering the north car park undertaken in 2012 identified the presence of all four common native reptile species (adder (*Vipera berus*), grass snake (*Natrix natrix*), slow-worm (*Anguis fragilis*) and common lizard (*Zootoca vivipara*)) (unpublished data). An additional walkover survey, including an assessment of reptile potential of Coronation Wood, was undertaken in September 2014 and population assessments were undertaken in Autumn 2015. These surveys confirmed that the majority of Coronation Wood was found to be unsuitable for reptiles, with reptiles primarily found to be present along the western boundary of the woodland as indicated in **Figure 6.1**.
- 6.1.21 Surveys completed in 2015 identified slow worm, common lizard and adder within the area proposed for construction stockpiling. Whilst moderate numbers of reptiles were recorded, the majority were associated with the landscape planting located north of the indicative development boundary. Only small numbers of common lizard and slow worm were recorded in the flatter grassland areas where the majority of the stockpiling is proposed.
- 6.1.22 Pillbox Field was not included within reptile surveys in 2012. Therefore, in August 2015 a walkover survey, including an assessment of reptile potential, was undertaken and followed up by reptile surveys during September and October 2015 (unpublished data). It was found that the area supports a limited population of all four common native reptile species.

v. Bats

- 6.1.23 A series of assessments (carried out from the ground) to identify the potential of trees within and adjacent to Coronation Wood to support roosting bats were undertaken in 2012 and 2014 (unpublished data). In 2012, trees were categorised as being of 'medium', 'high', or 'very high' potential (these terms were not defined). In 2014 the trees were categorised following the definitions set out in 'Bat Survey – Good Practice Guidelines' (2nd Ed) (Ref. 6.3).
- 6.1.24 Surveys in 2012 identified three trees with 'medium' bat roost potential located at the northern end of Coronation Wood. A further ten trees were inspected during 2014 (eight in Coronation Wood and two on the embankment). Seven of these either had some limited potential to support bats or while having no obvious potential, were of a size and age that elevated (i.e. tree-climbing) surveys may result in suitable features being found.

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- 6.1.25 Surveys in 2012 covered a wider area than the indicative development boundary, and a wider area than the surveys undertaken in 2014 which were restricted to Coronation Wood and the embankment. The survey results have been combined in **Figure 6.2** (where survey areas overlapped, only the 2014 results are shown to avoid duplication). Only trees assessed as 'high' or 'medium' potential from the 2012 surveys are included on **Figure 6.2**. Similarly, only trees that are Category 2 from the 2014 surveys are included on **Figure 6.2** (these are trees with either some limited potential to support bats or while having no obvious potential), were of a size and age that elevated (i.e. tree-climbing) surveys may result in suitable features being found. No higher-category trees (high potential or Grade 1) were located within the footprint of the proposed training centre and visitor centre. Six Category 2 trees were present within the proposed training centre and visitor centre footprint.
- 6.1.26 Additional trees, located to the south-east of Coronation Wood, were identified as having 'medium' or 'high' potential in 2012. These trees are located outside of the Site boundary but have the potential to be impacted by indirect effects, as do trees within the plantings to the east of Pillbox Field.
- 6.1.27 Static bat detector surveys were undertaken in 2012 and 2013 (unpublished data) within Coronation Wood. Surveys using six Anabat SD1/2 (2012) or a single SM2BAT+ (2013) static bat detector(s) identified a range of bat species noctule (*Nyctalus noctula*), serotine (*Eptesicus serotinus*), mouse-eared (*Myotis* spp.), brown long-eared (*Plecotus auritus*), barbastelle (*Barbastella barbastellus*), Nathusius' pipistrelle (*Pipistrellus nathusii*), Leisler's (*N. leisleri*), common pipistrelle (*P. pipistrellus*) and soprano pipistrelle (*P. pygmaeus*) using Coronation Wood. The 2012 surveys extended throughout Coronation Wood, and south into the woodland to the east of Pillbox Field.
- 6.1.28 With the exception of common and soprano pipistrelle, other bat species were recorded only infrequently, accounting for just 4% of bat passes recorded by the static detectors (unpublished data). This indicates that Coronation Wood is regularly used by common and soprano pipistrelle, but that the foraging resources within Coronation Wood are not of high value to other species.
- 6.1.29 Walked activity transects were also undertaken in 2012 (unpublished data) within Coronation Wood (transect surveys give context to static detector surveys, which provide an index of bat activity rather than abundance). Only two species, common and soprano pipistrelle, were recorded, with the majority of activity recorded along the ditch at the bottom of the embankment to the west of Coronation Wood. Additional activity transects were undertaken in September and October 2015 covering Pillbox Field, the Sizewell power station complex access road, the outside boundaries of Coronation Wood and the access road to the north of Coronation Wood (unpublished data).
- 6.1.30 Common and soprano pipistrelle activity within Coronation Wood is likely to be indicative of primarily foraging and/or commuting behaviour. Coronation Wood also provides potential roosting opportunities for both species, although no evidence of current use was identified in 2012 (unpublished data).
- 6.1.31 Based on the timings of static detector recordings and the low frequency of activity recorded for species other than common and soprano pipistrelle, it was considered unlikely that any of these species (with the possible exception of brown long-eared

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bats, which may be under-represented due to the quiet nature of their echolocation calls), are roosting close to, or within, Coronation Wood (unpublished data).

- 6.1.32 The pillbox within Pillbox Field was investigated in September 2015 and was found to be sub-optimal for occupation by bats due to light levels and airflow, with no evidence of use by bats identified. Foraging activity within Pillbox Field itself was limited with only two bat passes recorded, both of which were mouse-eared bats (*Myotis* spp.).
- 6.1.33 The disused underground Sizewell A reservoirs and associated pump house lying outside Coronation Wood have been inspected and have no potential for use by bats.

vi. Birds

- 6.1.34 Breeding bird surveys carried out in Coronation Wood in April to June 2014 (unpublished data) identified that it supported a limited range of common and widespread breeding bird species characteristic of woodland habitat, including great tit (*Parus major*), blue tit (*Cyanistes caeruleus*) and goldcrest (*Regulus regulus*). No Red or Amber listed birds of conservation concern were recorded. Wintering bird surveys of Coronation Wood between November 2014 and March 2015 identified a single Amber list species, dunnock (*Prunella modularis*), of which one individual was recorded on a single survey occasion. Annual breeding bird surveys indicate that the woodland edge between the Sizewell Marshes SSSI and Coronation Wood supports a range of breeding bird species, mainly common and widespread species indicative of woodland edge habitat but a number of red-listed species are present including song thrush (*Turdus philomelos*) and marsh tit (*Poecile palustris*).
- 6.1.35 The breeding bird survey undertaken in 2014 included the area proposed for stockpiling during construction to the north of Sizewell B and identified that it supported a limited assemblage of breeding birds characteristic of grassland and scrub habitat. These included the following Red List species: house sparrow (*Passer domesticus*); song thrush; starling (*Sturnus vulgaris*); linnet (*Carduelis cannabina*); and marsh tit. Wintering bird surveys undertaken in 2014 identified a limited number of wintering bird species present including: snipe (*Gallinago gallinago*); mallard (*Anas platyrhynchos*); teal (*Anas crecca*); and curlew (*Numenius arquata*), using areas of temporary winter flooding.
- 6.1.36 Breeding bird surveys were undertaken across a number of arable fields, including Pillbox Field, in 2012. In combination with a walkover and Extended Phase 1 survey undertaken in 2015 it was identified that Pillbox Field has the potential to support a limited range of common and widespread breeding bird species including ground-nesting species such as skylark (*Alauda arvensis*) (included on the RSPB's Red List of 'Birds of Conservation Concern') (Ref. 6.4).
- 6.1.37 Habitats within the indicative development boundary are unlikely to support the species that are qualifying 'interest features' of the SPA. Red-throated diver (the interest features of the Outer Thames Estuary SPA) is a marine species. There is no heath or conifer clear-fell that would support ground nesting woodlark or nightjar (interest features of the Sandlings SPA). Marsh harriers (an interest feature of the Minsmere to Walberswick SPA) have been recorded foraging within the Sizewell Marshes SSSI, albeit to a more limited extent in comparison with similar wetland habitats located closer to the breeding population at Minsmere, such as at Minsmere South Levels.

vii. Water Voles

- 6.1.38 Ditches within the Sizewell Marshes SSSI were surveyed for water vole signs in 2009 (unpublished data). The survey area is shown in **Figure 6.1**. Additional surveys were conducted in October 2015 that covered all drains within 100m of the proposed Site boundary, extending from the northern edge of Coronation Wood into Pillbox Field (unpublished data). The majority of ditches located adjacent to the proposed development supported poor water vole habitat, with high levels of shade cast by riparian trees and little available aquatic and emergent vegetation. Two ditches, one located to the south of the clearing created for the pylons west of Coronation Wood, and one bordering the western edge of the area proposed for stockpiling during construction were considered to provide good water vole habitat with a high density of field signs identified.
- 6.1.39 It should be noted that the October 2015 survey did not include the ditch adjacent to the area proposed for stockpiling during construction as the Site boundary was finalised after survey work had been complete. Water vole signs were identified here in 2009 and the habitat remains suitable, so water voles are also likely to be present in this location.

viii. Otters

- 6.1.40 The bank of the drain at the bottom of the embankment, along with the area of adjacent wet woodland, to the west of the existing west car park and the edge of the area proposed for stockpiling during construction, were assessed for the presence of otter signs during a walkover survey in September 2014 (unpublished data). No holts, lying-up sites, or other evidence to indicate the presence of otters, were identified. The areas surveyed for otters in October 2015 were the same as for water voles.

ix. Badgers

- 6.1.41 Information relating to badger setts and activity is considered sensitive. Therefore, **Appendix B**, which details the baseline conditions in relation to badgers, is provided as a confidential report to SCDC.

b) Potential Environmental Impacts

i. Construction

- 6.1.42 The potential direct impacts due to the construction of the visitor centre, training centre, laydown area, operational car park, part of the western access road, outage car parking within Pillbox Field, and construction stockpiling are as follows:
- the loss of woodland within Coronation Wood;
 - the loss of potential nesting habitat for breeding birds within Coronation Wood and the area of the disused Sizewell A reservoirs, and to a limited extent of landscape planting within the area proposed for construction stockpiling, and for breeding birds in Pillbox Field;
 - the loss of trees assessed as being of low potential (Category 2) for roosting and foraging bats within Coronation Wood;
 - depending on the access road alignment and junction, the potential loss of a small section of hedgerow (not a hedgerow identified as 'Important' under the

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Hedgerows Regulations, 1997) and associated loss of potential bird nesting habitat;

- disturbance to water voles and potential damage to burrows from the construction of a means of pedestrian access from Pillbox Field to Sizewell B;
- loss of reptile habitat within Pillbox Field and around the margins and associated rides in Coronation Wood and potential incidental mortality of reptile species;
- loss of reptile habitat and incidental mortality to reptile species due to stockpiling of material during construction of the proposed development;
- loss of reptile habitat in the area of the disused reservoir;
- potential loss or disturbance of badger setts within Coronation Wood or the isolation of badger setts within Coronation Wood from those within the wider social group; and
- potential disturbance from noise and lighting during construction on areas of retained habitat and associated species.

6.1.43 The potential for disturbance or incidental mortality to water voles resident along the margins of the ditch forming the western boundary of the area proposed for stockpiling would be avoided through the establishment of a 10m buffer between the Site boundary and the ditch.

6.1.44 In addition to these potential direct impacts, the potential also exists for indirect effects (such as effects on hydrology and hydrogeology, including water quality effects) and disturbance from additional noise and lighting associated with the works to impact upon the wet woodland and beyond to the Sizewell Marshes SSSI. While the development boundary does extend into the SSSI adjacent to Rosary Cottages, this is in order to include the use of the existing gates in the adjacent fields for access.

ii. Operation

6.1.45 The proposed pedestrian access from the outage car park in Pillbox Field could have an intermittent, short-term disturbance effect on birds and bats using the south-east corner of Sizewell Marshes SSSI. Therefore, it would be scoped into the assessment.

6.1.46 There is the potential for noise and lighting impacts associated with buildings and car parking. Consideration of these impacts is therefore scoped in to the assessment.

c) Proposed Assessment Methodology

6.1.47 The Ecological Impact Assessment (EclA) would be carried out in accordance with the current Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines on EclA (Ref. 6.5). Based on the survey work undertaken to date and the baseline data held, no further survey work is proposed as part of the EIA. Survey would take place in advance of construction as part of site clearance works. This will be outlined within the EclA.

6.1.48 The EclA would determine which are the Important Ecological Features (IEFs) (i.e. those features of sufficient value and likely to be sufficiently affected as to be a material consideration in the planning decision).

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- 6.1.49 In addition to the assessment of IEFs, and the inclusion of mitigation measures for IEFs as required, mitigation measures will also be proposed to ensure compliance with the legislation relating to protected (and controlled) species. Such measures are likely to largely relate to the siting, timing and method of site clearance, and the protection of retained habitats, to ensure compliance with the legislation in respect of water voles, nesting birds, reptiles, roosting bats and Indian (Himalayan) balsam, as required.

d) Habitats Regulation Assessment (HRA)

- 6.1.50 The closest European Sites are the Minsmere to Walberswick Heaths and Marshes SPA, SAC, Ramsar, and SSSI to the north, the Outer Thames Estuary SPA to the east, and Aldringham Walks (part of the Sandlings SPA), to the south-west. On the basis of the nature of the proposed development and its distance to each of these sites (approximately 150m to the north, 180m to the east, and 650m to the south-west respectively), no Likely Significant Effects (LSEs) are expected either during the construction or operational phases. This will be examined in detail in a Shadow HRA Screening Assessment that will accompany the planning application.

6.2 Landscape and Visual

a) Baseline Conditions

i. Landscape Character

- 6.2.1 The wider landscape surrounding the Site and existing Sizewell A and Sizewell B power stations reflects a range of natural and cultural influences. Within the context of Natural England's National Character Assessment and the East of England Regional Landscape Typology, the key reference is the Suffolk County Landscape Character Assessment (Ref. 6.6) which identifies 30 landscape types (excluding urban). Of particular relevance to the proposed development are the Estate Sandlands; Coastal Levels; and Coastal Dunes and Shingle Ridges landscape types.
- 6.2.2 Along the coast, the landscape is mainly flat or gently rolling, often open but with few commanding viewpoints. Much of the area was heathland of low economic value until extensive irrigation and fertiliser inputs transformed the productivity of the light sandy soils during the second half of the twentieth century. Farming now utilises a significant portion of the landscape. The Sandlings form a particularly distinctive element of this coastal landscape and although traditional heath is now much fragmented, its wildlife importance is recognised by the extent of land designated for its conservation interest, notably the Sandlings Special Protection Area (SPA) which is located to the south of the Sizewell Gap.
- 6.2.3 Immediately to the west of the existing Sizewell power station complex are the low lying coastal levels of the Sizewell Belts. This landscape is characterised by freshwater grazing marsh. A large part of the area is designated as the Sizewell Marshes SSSI. The SSSI comprises a large area of lowland, unimproved wet meadows, for which it is designated, located in a low-lying basin of deep fen peat. The site also consists of an extensive network of ditches and has a permanently high water table so that the area is prone to flooding
- 6.2.4 East of the existing Sizewell nuclear power station complex the shoreline is characterised by stretches of shingle ridges, beaches and vegetated dunes.
- 6.2.5 Designated areas are shown on **Figure 3.1** and **Figure 3.2**.
- 6.2.6 The area of the Site within the Sizewell B site perimeter is characterised by the existing operational Sizewell B power station and associated structures and infrastructure, including access roads, arranged on an axial alignment, parallel to the coast. Whilst there are some landscaped areas, it displays a strong planned and industrial character.
- 6.2.7 The area of the Site outside the Sizewell B site perimeter encompasses land around Sizewell A power station (which displays the same industrial and planned character as within the Sizewell B site perimeter), and land to the west of Sizewell B which includes areas within and adjacent to Coronation Wood, scrub, grassland and carr woodland adjacent to the Sizewell Marshes SSSI, areas of car parking, ancillary structures and infrastructure associated with Sizewell B.
- 6.2.8 Coronation Wood has a mix of semi-mature and mature plantation pine which dominate the woodland interior with mature broadleaf trees around the eastern, southern and south-western edges. Species include Oak, Beech, Sycamore, Silver

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Birch, Sweet Chestnut, Cherry and Elm as well as Pine and Giant Fir. There is little understorey, and ground flora has been suppressed due to a lack of light from the canopy and the depth of pine needles.

- 6.2.9 To the north of the Sizewell B site perimeter, the Site includes the existing operation training centre, outage store, civil workshop and store, temporary visitor centre, car parking and areas of laydown hardstanding. The layout of buildings and roads in this area displays a similar layout to areas within the Sizewell B site perimeter. To the north of the existing Sizewell B buildings and within the indicative development boundary is an area that was previously used for the construction of Sizewell B that has since been restored.
- 6.2.10 The Site includes Pillbox Field which comprises former arable farmland that has been allowed to revert to grassland. Pillbox Field 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 which is the access track to Rosary Cottages (owned by NGL). Sandy Lane is the route of Bridleway 19. Hedgerows and scrub enclose the route along much of its length between the Sizewell Gap and Rosary Cottages.
- 6.2.11 To the west of Pillbox Field lies an area of woodland and the Greater Gabbard Offshore Windfarm Onshore Sub Station Facility and associated access road off the Sizewell Gap road. Consent has been granted for the Galloper Offshore Windfarm Onshore Sub Station Facility (and associated landscaping of woodland and grassland) which would be located adjacent to the Greater Gabbard Sub Station Facility. The Galloper Sub Station is currently under construction.

ii. Visual Environment and Visual Receptors

- 6.2.12 Visual receptors are “*Individuals and/or defined groups of people who have the potential to be affected by a proposal*” (Ref. 6.7).
- 6.2.13 Several factors such as landform, buildings, vegetation and land use patterns influence the visual character of the Site and its wider landscape context.
- 6.2.14 Analysis undertaken in 2013 and more recent design options analysis indicates that changes to views arising from the proposed development would be generally restricted to locations within approximately 1km of the Site including areas with no public access within the existing Sizewell A and Sizewell B sites. These appraisals also indicate that the proposed development would not significantly alter views from locations along the coast and offshore, albeit this will be further assessed in the Landscape and Visual Impact Assessment (LVIA).
- 6.2.15 In order to identify those groups who may be significantly affected, Zone of Theoretical Visibility (ZTV) studies, desk study and site visits will be used to inform the LVIA.

iii. Landscape Designations and Definitions

- 6.2.16 The Site is located entirely within the Suffolk Coast and Heaths AONB designation (see **Figure 3.2**).
- 6.2.17 The Suffolk Coast and Heaths, confirmed as an AONB in March 1970 and covering approximately 403 square kilometres, extends from the northern side of the Stour

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estuary to the eastern fringe of Ipswich and as far north as Kessingland. It consists of a mosaic of different habitats and land uses including farmland; heathland; ancient woodland; commercial forestry; reedbeds; estuaries; grazing marsh; small towns and villages; and shingle beaches (Ref. 6.8).

- 6.2.18 The Site is also partially within the Suffolk Heritage Coast (see **Figure 3.2**) which was defined in 1973 and is largely contained within the AONB (Ref. 6.8). In the vicinity of the Site the western boundary of the Suffolk Heritage Coast is defined by Sandy Lane (leading to Rosary Cottages); the access road to the west of Sizewell A and Sizewell B and woodland/scrub to the west of the Sizewell B north car park. The eastern boundary is located offshore. As such the area defined includes the Sizewell A and Sizewell B power stations, coastline and offshore areas.

b) Potential Environmental Impacts

- 6.2.19 The proposed development would have potential effects on the landscape as a resource and on views and visual amenity of receptors. The main effects arising from the proposed development are likely to result from the loss of landscape features/elements and the introduction of new features/elements either temporarily (for example during construction) or in the long-term (for example during the operational life of the proposed development).
- 6.2.20 The significance of effects will vary as a result of numerous interrelated factors including the sensitivity of the landscape or visual receptors and the magnitude of change resulting from the proposed development (which will vary dependent on issues such as scale, duration and extent). Consideration is given below to the potential effects arising from the proposed development during construction and operation.

i. Construction

- 6.2.21 Landscape and visual effects during construction may potentially result from the following:
- movement of machinery and traffic to and around the construction site;
 - felling of trees and removal of vegetation as part of site clearance and preparation;
 - localised changes to topography due to excavation and the temporary stockpiling and storage of excavated materials;
 - construction working areas, laydown areas, workshops, storage and other temporary structures associated with construction;
 - construction roads, fencing, lighting and security features;
 - construction of new buildings and facilities and associated access routes and car parking, including in Pillbox Field; and
 - demolition of existing facilities/buildings and removal of materials arising.
- 6.2.22 Effects at night may also be experienced as a result of lighting to structures, access and perimeter fencing.

ii. Operation

- 6.2.23 Landscape and visual effects are likely to arise from new buildings, infrastructure and facilities located within and outside the Sizewell B site perimeter, and outside of the Sizewell power station complex. Effects may also result from the demolition of existing facilities and structures and removal of vegetation providing views to buildings and features that were previously screened.
- 6.2.24 Effects at night may also be experienced as a result of lighting to buildings, structures, access and perimeter fencing.

c) Proposed Assessment Methodology

- 6.2.25 The LVIA methodology draws upon the established Landscape Institute and Institute of Environmental Management and Assessment (third edition) 'Guidelines for Landscape and Visual Impact Assessment' (GLVIA 3) (Ref. 6.7), Natural England's 'An Approach to Landscape Character Assessment' (Ref. 6.9) and other recognised guidelines, in particular Scottish Natural Heritage's 'Visual Representation of Wind Farms' (Ref. 6.10) and the Landscape Institute Advice Note 'Photography and Photomontage in Landscape and Visual Impact Assessment' (Ref. 6.11).
- 6.2.26 The approach has four key stages:
- **Baseline** – includes the gathering of documented information (for example published documents describing landscape character); scoping of the assessment and agreement of that scope with relevant consultees and the local planning authority; site visits; and initial reports on issues that may need to be addressed within the design.
 - **Design** – input into the design, review of initial design layouts and options, and mitigation options.
 - **Assessment** – includes an assessment of the landscape and visual effects of the scheme, requiring site based work and the completion of a full report and supporting graphics. Landscape and visual effects from a series of viewpoints will be considered. Viewpoint locations will be discussed and agreed with SCDC as part of the assessment.
 - **Cumulative Assessment** – assesses the effects of the proposed development in combination with other developments.

6.3 Historic Environment

a) Baseline Conditions

- 6.3.1 Based on the Site area shown on **Figure 1.2**, the following information has been reviewed:
- the Suffolk Historic Environment Record (HER);
 - records of previous archaeological investigation;
 - National Heritage List spatial datasets of designated heritage assets;
 - the Historic England Archive (formerly National Monuments Record – NMR); and
 - historic mapping and documentary records.
- 6.3.2 A Desk Based Assessment (DBA) carried out in 2015 (unpublished data) assessed the potential for the presence of archaeological remains within the Site boundary. It classified the majority of the Site as ‘medium’, meaning that features and/or deposits of archaeological interest may be present, and Pillbox Field as ‘high’, meaning that features and/or deposits of archaeological interest are, or are likely to be, present.
- 6.3.3 Recorded heritage assets within Pillbox Field include chance finds of prehistoric, Roman and medieval date, the eponymous Second World War (WWII) pillbox, together with a slit trench and weapons pit. No evidence for a possible ring ditch identified from aerial photographs (unpublished data) was uncovered during trial trenching (see below).
- 6.3.4 Archaeological investigation of the southern edge of Pillbox Field, in advance of the Greater Gabbard Windfarm Onshore Substation Facility, uncovered the remains of timber buildings, of 12th to 14th century date, interpreted as a monastic grange associated with Leiston Abbey. Parts of the hull of an early medieval boat had been re-used for the timber lining of a well. The boat is believed to have been an inshore fishing vessel, which had probably been broken up between the 12th and 14th centuries (unpublished data).
- 6.3.5 Trial trenching in 2016 confirmed the presence of archaeological features identified by geophysical survey in Pillbox Field (unpublished data). This recorded the remains of medieval occupation or industrial activity, together with evidence for agricultural trackways, field boundaries and sand extraction of possible medieval date. The possible occupation remains are confined to a small localised area in the west of the field. These heavily truncated remains do not appear to be an extension of the possible monastic grange identified on the Greater Gabbard site to the south.
- 6.3.6 A possible trackway, defined by parallel ditches aligned north-west to south-east, extended across the centre of the field and a second possible north-south trackway was recorded on the western edge of the field. Pottery sherds recovered from the backfilled ditches were assigned a 12th-14th century date. Two possible hearths and a number of postholes uncovered in the west of the field are likely to represent a domestic or industrial area. The hearths were undated but they were covered by a buried soil deposit containing 11th to 13th century pottery sherds.
- 6.3.7 Large areas of disturbance identified by the geophysical survey in the north of the field were determined to be sand extraction pits, one of which contained a sherd of

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12th to 14th-century pottery. A further sand extraction pit was identified in the south-west of the site.

- 6.3.8 A number of undated ditches, aligned north-south and east-west, presumably formed part of a field system. An undated north-south ditch was interpreted as a possible communication trench associated with the extant WWII pillbox (unpublished data).
- 6.3.9 A single medieval pottery sherd was recovered during monitoring of geotechnical test pits in Pillbox field but no archaeological features were recorded (unpublished data).
- 6.3.10 The fields to the north of Sizewell B, which would be used for stockpiling during the construction and demolition phase, have been subject to extensive site investigations, including boreholes, a resistivity tomography survey, watching briefs on a powered auger survey and excavation of peat extraction trenches (unpublished data).
- 6.3.11 These studies demonstrated that extensive Holocene wetland deposits underlie this area, including thick peat deposits which have been identified as having archaeological potential. These are located to the north and west of Sizewell B power station where the local underlying Norwich Crag Formation topography reduces in altitude. Across the centre of the area there is a clearly demarcated palaeochannel, running west to east towards the coastline. Holocene deposits overlying this palaeochannel range in thickness between 4-8m.
- 6.3.12 The peat deposits are buried between 8m and 10m below ground level. A watching brief in 2009 recorded that the upper peat horizon is overlain by 4m of alluvium and a further 4m of modern make-up, while the bulk of the peat was located over 10.5m below ground level (unpublished data).
- 6.3.13 These deposits are of medium significance. Due to the depth at which they are located, they would not be disturbed by the proposed works.
- 6.3.14 Other archaeological interests within the development boundary primarily relate to potential buried archaeological remains, earthworks or WWII defensive features in Coronation Wood. Deposits of geoarchaeological and palaeoenvironmental importance would be of Medium significance and are likely to be present only in the low lying areas around the fringes of the Site, which would not be disturbed by the proposed development.
- 6.3.15 Buried archaeological remains of medieval or earlier date, traces of earthwork features and or post-medieval (pre-1900) activity, may survive within Coronation Wood, which was planted in the early 20th century. Surviving features, if present, are likely to be poorly preserved and of low – medium significance.
- 6.3.16 A number of military defensive features have previously been recorded on the Site (unpublished data). Elements of these features may survive within Coronation Wood; if present, these would likely be of low significance.
- 6.3.17 Elsewhere within the Site, it is considered likely that military features would have been substantially disturbed during the construction of the Sizewell A and B power stations and subsequent landscaping, and that any surviving military remains would be fragmentary and of low significance.

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- 6.3.18 Structures associated with the Sizewell B power station itself have a degree of heritage significance arising from architectural interest and historic interest as parts of the nuclear power generation industry. This interest primarily resides in the reactor and turbine buildings, particularly the iconic domed structure at Sizewell B, but arguably applies to the ancillary structures, which could be seen as having low significance for historic interest.
- 6.3.19 A recent historic landscape study (Ref. 6.15) places the Site within a wider Sandlings Historic Landscape Zone. The Suffolk Historic Landscape Characterisation (HLC) identified the site as lying within an area of Industrial Historic Landscape Character.

b) Potential Environmental Impacts

- 6.3.20 Potential impacts of the proposed development on the historic environment could arise either through direct disturbance or destruction of heritage assets, change to the historic landscape or through change to the settings of undesignated heritage assets.

i. Construction

- 6.3.21 Disturbance to deposits of geoarchaeological or palaeoenvironmental interest of medium significance is not anticipated to arise as a result of the proposed development.
- 6.3.22 Potential impacts arising from direct disturbance or loss could comprise:
- disturbance to archaeological remains of low significance in Pillbox Field;
 - demolition of structures of low significance associated with the existing power station; and
 - disturbance of archaeological remains of low-medium significance and/or WWII military features of low significance, which may survive within Coronation Wood.
- 6.3.23 These effects could be considered as adverse but effectively mitigated through an appropriate scheme of investigation and recording.
- 6.3.24 Perceptual effects of the development would not give rise to any discernible change to the settings of heritage assets and no loss of significance, with the possible exception of the WWII pillbox in Pillbox Field, which will be considered as part of the assessment.

ii. Operation

- 6.3.25 No discernible change to the settings of designated heritage assets is anticipated, with the possible exception of the WWII pillbox in Pillbox Field, which will be considered as part of the assessment.
- 6.3.26 Generally, the proposed development would represent a minor change in the configuration of the existing power station ancillary structures and would be screened in views of, and from, heritage assets within the vicinity by intervening woodland and hedgerow planting. Any visibility of the proposed infrastructure would be insufficiently prominent to give rise to discernible change to setting.

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c) Proposed Assessment Methodology

- 6.3.27 There is, as yet, no standard or guidance published by the ClfA or Historic England specifically relating to EIAs for archaeology and cultural heritage. The Design Manual for Roads and Bridges (DMRB), Volume 11: Environmental Assessment, Section 3, Part 2, Cultural Heritage (Ref. 6.12) contains guidance for assessing the effects of road schemes on cultural heritage. It includes criteria for determining the value of heritage assets and assessing the magnitude of impacts on the heritage resource. Heritage assets will be assigned a level of importance (value) in accordance with the historic environment definitions given in DMRB Volume 11.
- 6.3.28 The potential effects of the proposed development relate to the loss of buildings of low significance, the disturbance of archaeological remains of low significance and potential impacts to the setting of the WWII pillbox in Pillbox Field.
- 6.3.29 The NPPF requires the loss of significance arising from the disturbance of heritage assets to be mitigated through an appropriate scheme of mitigation.
- 6.3.30 Archaeological evaluation, comprising geophysical survey and trial trenching has established that buried archaeological remains of Low significance are present in Pillbox Field. Therefore, the most appropriate approach would comprise Preservation by Record, in the form of archaeological excavation and recording followed by post-excavation assessment and analysis leading to publication of the results and archiving the finds and records from the excavation. A Written Scheme of Investigation (WSI), detailing the proposed mitigation strategy, would be submitted to Suffolk County Council Archaeology Service (SCCAS) for approval, prior to development.
- 6.3.31 A level 2 descriptive and photographic record (Ref. 6.13) would be compiled of any buildings that are to be demolished and which are considered to be of historic interest following consultation with Historic England.
- 6.3.32 A phased programme of archaeological investigation would be carried out in association with tree-felling and vegetation clearance within Coronation Wood. Trees would be cut to ground level and their roots would be left in-situ, not grubbed out, to enable archaeologists to carry out a site walkover, topographical survey and metal detecting to identify whether archaeological remains, earthworks or military features are present. If any such remains were identified, an appropriate strategy for archaeological recording would be agreed with SCCAS. All archaeological works would be undertaken in accordance with an approved WSI.
- 6.3.33 Archaeological fieldwork will be carried out in accordance with Standards and Guidance for Archaeological Field Evaluation prepared by the Chartered Institute for Archaeologists (Ref. 6.14), and Standards for Field Archaeology in the East of England (Ref. 6.15).
- 6.3.34 The results of the archaeological investigations would be reported to SCC HER and Online access to the index of archaeological investigations (OASIS) records would be completed for each event.
- 6.3.35 A summary of the results of the investigation would be published in an appropriate regional, national or period-specific journal.

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- 6.3.36 These measures will provide for an appropriate level of investigation and recording to ensure that any loss of archaeological and historical interest could be mitigated by record and dissemination of information, in accordance with NPPF.

6.4 Amenity and Recreation

a) Baseline conditions

i. Study area

- 6.4.1 Initial site analysis and desk top studies have identified a study area of 1km, measured around the Site boundary shown in **Figure 1.2**. The provisional study area has been derived on the basis of potential interaction with the receptors identified below. It is considered that this area will capture all potential significant effects on recreational receptors (i.e. people using recreational resources) as a result of construction and operation phase activities. Recreational receptors using recreational resources include local residents and tourists (day visitors and holiday makers).
- 6.4.2 The study area captures Public Rights of Way (PRoW) and Permissive paths, local roads and open air recreation assets (recreational resources). It is anticipated that consideration of local roads where footpaths adjoin or where these roads are used for recreational cycling or walking will be included.
- 6.4.3 The existing amenity and recreation resources within the study area comprise:
- Bridleway 19 on Sandy Lane (the southern end of Sandy Lane would be used as part of the access to the outage car park located in Pillbox Field).
 - Sandlings Walk, which runs along Sizewell Gap and along the coast immediately east of the development boundary and approximately 120m to the north of the boundary at Goose Hill.
 - The Suffolk Coast Path which runs immediately east of the development boundary along the coast, on part of the same route as Sandlings Walk;
 - a number of permissive paths to the west of the development boundary; and
 - the closest area of open access land at Leiston Common lying approximately 790m west of the development boundary.
- 6.4.4 There are no other amenity and recreation receptors within or immediately adjacent to the Site boundary.
- 6.4.5 The amenity and recreation study area includes areas of the Suffolk Coast and Heaths AONB, and areas defined as Heritage Coast. The Suffolk Heritage Coast is largely contained within the AONB, but extends some distance offshore.

ii. Existing Recreational User Survey Information

- 6.4.6 Existing recreational user survey information relating to Suffolk and the study area will be reviewed, to inform the baseline recreational resource. The following sources have been identified:
- Destination Research Ltd. Visit Suffolk Market Segmentation Draft Report July 2015 (Ref. 6.16);
 - Suffolk Coast and Heaths AONB. Suffolk Coast Tourism Strategy 2013-2023: Strategy Report. Published 2013 (Ref. 6.17);

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- Natural England. Monitor of Engagement with the Natural Environment: The national survey on people and the natural environment. July 2013 (Ref. 6.18);
- Footprint Ecology. South Sandlings Living Landscape Project: Visitor Survey Report. 2011 (Ref. 6.19);
- East of England Tourist Board. Suffolk Visitor Survey 2010 (Ref. 6.20);
- In Step With Suffolk: Rights of Way Improvement Plan: Assessment Report 2004 (Ref. 6.21);
- East of England Tourist Board, Suffolk Coast & Heaths Area of Outstanding Natural Beauty (AONB) Visitor Research 2004 (Ref. 6.22); and
- East of England Tourist Board, Visitor and Recreation Data in the Suffolk Coast and Heaths Area of Outstanding Natural Beauty 2003 (Ref. 6.23).

b) Potential Environmental Impacts

- 6.4.7 The proposed development has the potential to affect recreational and amenity assets and receptors during both the construction and operational phase.
- 6.4.8 Many receptors within the study area would not be affected and it is proposed that these are scoped out of the assessment. This includes all beach and sea based receptors, and most receptors beyond approximately 0.5km of the Site boundary as it is not anticipated that disturbance impacts would extend beyond this.
- 6.4.9 The only receptors that may potentially be directly impacted by the proposed development are:
- Bridleway 19 on Sandy Lane located on the western boundary of Pillbox Field. Part of Sandy Lane may be used as part of the access to the Pillbox Field outage car park; and
 - the Sandlings Walk long distance path which runs adjacent to the development boundary along Sizewell Gap.

i. Construction

- 6.4.10 Potential impacts during construction may result from disturbance of users of nearby PRow, outside recreational facilities, open access land and public open space (i.e. recreational receptors) from a range of activities, including construction noise, traffic noise, dust and other emissions and visual disturbance. Potential impacts may also result from possible changes to part of Bridleway 19 on Sandy Lane for the proposed outage car park access.
- 6.4.11 Depending upon the final scheme design detail, effects at night may also be experienced as a result of security and other lighting to structures, access and perimeter fencing.

ii. Operation

- 6.4.12 Potential impacts during operation may result from altered amenity of users of PRow and other recreational receptors in the vicinity of the development resulting from noise emissions, views to, and lighting of the development. Potential impacts may

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also result from the possible changes to part of Bridleway 19 on Sandy Lane depending on the final access arrangement to the proposed outage car park.

- 6.4.13 However, it is judged that the only receptors that have potential to experience significant effects would be users of Bridleway 19. All other receptors would not experience any changes due to physical alteration to the recreational resources, and small or no effects due to changes to views, noise and air quality. Users of all resources apart from Bridleway 19 are, therefore, scoped out of the assessment.

c) Proposed Assessment Methodology

- 6.4.14 There are no established or published methods for assessing the impacts of development upon amenity and recreational receptors. The assessment will be undertaken in accordance with the relevant EIA Directive, regulations and guidance documents (see **Section 5**).
- 6.4.15 The assessment will consider impacts and effects during the construction and operational phases on:
- users of PRow, including along Bridleway 19 on Sandy Lane;
 - users of the Sandlings Walk long distance path;
 - disturbance to recreational walkers, cyclists and horse riders on local roads; and
 - disturbance to users of recreational facilities, open access land and public open space, including nature reserves and sports clubs/facilities.
- 6.4.16 The assessment will include consideration of the likely alteration to the amenity experience with reference to the visual and noise environment, including any increased traffic along the road network, noise, and visual disturbance resulting from changes to views, drawing on the Landscape and Visual Impact Assessment (LVIA), noise and vibration, and transport chapters of the ES.

6.5 Transport

a) Baseline Conditions

- 6.5.1 The road network in the vicinity of the Site comprises mainly rural lanes handling low volumes of traffic. The existing access to Sizewell B is off Sizewell Gap, a single carriageway road with occasional priority junctions. The key strategic route serving the area is the A12 running between Ipswich and Lowestoft, which can be reached from the Site via Lover's Lane and B1122. Baseline traffic surveys have been undertaken along all key roads in the area, both during and outside of outage periods, and will be used to establish the baseline network conditions as part of the assessment.
- 6.5.2 The existing occasional HGV movements associated with the operation of Sizewell B are routed along Sizewell Gap, the B1122 and the A12, thereby avoiding the need for Sizewell B traffic to pass through the centre of Leiston. This itinerary is already designated by Highways England as route HR100 for high vehicles travelling between Lowestoft Docks and Sizewell B, while the A12 between Ipswich and Lowestoft also forms part of Suffolk's network of Strategic Lorry Routes.
- 6.5.3 A network of internal roads connects the various parts of the Site. The operational car park (the west car park) is situated in the south-western corner of the existing Sizewell power station complex, while the outage car park (the north car park) currently lies in the north-western portion of the complex. Several other parking facilities, including for visitors as well as laydown and storage facilities, are located at various points around the Site outside of the site perimeter.
- 6.5.4 Sizewell B has a full-time workforce of approximately 770 (Ref. 6.24). Approximately every 18 months a maintenance outage takes place, lasting for approximately one to three months. During this time the number of staff working on the Site rises to approximately 1,900 (Ref. 6.25).

b) Potential Environmental Impacts

i. Construction

- 6.5.5 The construction work associated with the proposed development is anticipated to last around 54 months, brought forward in phases. During this time there would be an increase in HGV traffic using local roads, with a maximum of 70 HGVs (140 movements) per day at peak to serve the Site during the peak construction period. Over the course of the construction and demolition phase, the average number of workforce personnel and HGV movements would be significantly lower than these numbers. The potential effect of increased HGV traffic will be considered in accordance with the methodology outlined in the following section.
- 6.5.6 A peak construction workforce of 175 staff is anticipated and while the environmental impacts associated with construction staff travel movements are expected to be limited these will be assessed alongside the construction HGV movements described above.

ii. Operation

- 6.5.7 Part of the operational parking arrangements would be relocated to Coronation Wood (see **Figure 3.4**). The new car parking spaces would continue to be accessed from the existing Sizewell B access road and so the relocation would have a negligible effect on transport outside the Site.
- 6.5.8 During outage periods, the additional workers required at these times would park at a relocated outage car park, equal in capacity to that of the existing outage car park. The car park would be located in the northern section of Pillbox Field. Vehicular access will be provided from Sizewell Gap (see **Figure 3.4**). The access road design and junction arrangement is under development and will be detailed within the ES.
- 6.5.9 The number of vehicle trips generated during a Sizewell B outage is not expected to change. During these outage periods, the additional workers required at these times would park at the proposed outage car park in Pillbox Field (see **Figure 3.4**). Once parked, workers would walk to the power station via a pedestrian walkway and crossing onto the Sizewell power station complex.
- 6.5.10 The proposed car park at Pillbox Field could also result in impacts on users of existing PRoW in the vicinity of the Site; these potential effects are described in more detail within the Amenity and Recreation section of this report (see **Section 6.4**).

c) Proposed Assessment Methodology

i. Study area

- 6.5.11 The EIA will include an assessment of the local traffic impacts of the proposed development. This will consider the peak traffic movements anticipated during the construction phase; taking account of the proposed programme of works, the size of the anticipated peak workforce, the proposed working hours and peak HGV movements expected to be generated by the works.
- 6.5.12 The assessment is likely to consider two peak network hours (morning and evening) taking account of existing network conditions and the timing of anticipated traffic movements associated with the construction phase. It will focus on the local road network in the vicinity of the Sizewell power station complex, including consideration of the likely most affected local roads, namely:
- Sizewell Gap;
 - Lover's Lane;
 - the B1122;
 - the B1069 through Leiston; and
 - the A12 (though the effect here is likely to be small).
- 6.5.13 Depending upon the scale and nature of movements anticipated, the analysis may extend beyond these roads.
- 6.5.14 Existing baseline data will be used to establish the baseline network conditions for any parts of the network under consideration and baseline flows will be adjusted as appropriate to reflect traffic growth assumed to occur by the time of the construction

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phase for the proposed development, before traffic associated with this phase is then added. It is anticipated that simplified assumptions will be used in relation to the origin of workforce related movements, and that HGV movements associated with the construction works would be required to use the B1122 and then Lover's Lane when travelling to and from the Site.

- 6.5.15 Traffic surveys have been undertaken to quantify the vehicle movements associated with outage period at Sizewell B. This data, together with counts of general traffic along Sizewell Gap, will be used to calculate the impact associated with the interaction of vehicles at the access to the outage car park in Pillbox Field during outage periods. Any temporary traffic management measures which may be deemed necessary at the entrance to Pillbox Field during outage periods would also be assessed.
- 6.5.16 In order to assess the environmental impacts of the proposed Pillbox Field outage car park and associated access arrangements, the highway design plans would be considered in relation not only to existing roads but also to PRow. A Stage 1 Road Safety Audit would be undertaken to inform the proposed junction design. In addition, the highway layout would be assessed qualitatively to determine how it would be used by all categories of user (including pedestrians, cyclists and equestrians). By comparing it to the existing situation the impact on these different user types can be considered, making reference to the relevant policy documents covering provision for these user groups. The findings from this assessment would be considered in the Amenity and Recreation assessment (see **Section 6.4**).
- 6.5.17 The assessment undertaken within the ES will consider the effects of the planned Sizewell B outage activities together with the relocated facilities construction phase activities.

ii. Assessment criteria

- 6.5.18 The EIA will include an assessment of the proposed development's impact upon traffic flow and congestion in relation to the following industry-standard criteria:
- link flow differences (i.e. the absolute and percentage change in traffic flow along a given stretch of road);
 - impacts on journey times;
 - ratio of flow to capacity (RFC) on a given stretch of road; and
 - junction level of service (JLoS).
- 6.5.19 RFC and JLoS are industry-standard measurements of highway capacity. The Design Manual for Roads and Bridges (DMRB) will also be used to inform assessment in this area, though strictly this only applies to trunk roads and motorways.
- 6.5.20 The environmental impacts of any changes in traffic flow arising from the proposed development will be assessed. Calculated anticipated changes in 18-hour and 24-hour traffic flows along links selected for analysis will also be provided to inform the noise assessment.
- 6.5.21 The Institute of Environmental Assessment's Guidelines for the Environmental Assessment of Road Traffic (Ref. 6.26), as well as relevant sections of the DMRB,

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will inform the assessment of transport-related effects including severance, pedestrian amenity, accidents and safety. These documents also set out the thresholds for determining the magnitude of impact across these categories.

iii. Additional assessment work

- 6.5.22 A planning application may, depending on the land use categories and net floor space for which permission is being sought, require a separate Transport Assessment (TA) to be undertaken; smaller developments may require a Transport Statement (TS).
- 6.5.23 As stated in Paragraph 32 of the NPPF, local planning authorities should make the decision regarding whether a proposed development would generate significant numbers of trips (and hence whether a TA or TS is required) on a case-by-case basis.
- 6.5.24 SCC's 2012 supplementary planning guidance Topic Paper 7 Highways and Transport (Ref. 6.27) refers to the thresholds for TAs and Travel Plans stated on the DfT's website. However, the final decision on whether a TA or TS is required is one for the local planning authority to make on a case-by-case basis using information about the change in floor area (if any) proposed in the application.
- 6.5.25 At this stage the precise land use categories and net floor space associated with the proposal have yet to be finalised. However, as described in **Section 3**, the proposed development involves relocation of existing facilities on a largely like-for-like basis, and therefore at this stage it is considered that a TA or TS is unlikely to be required. This will be confirmed with SCC and SCDC once the change in floor area (if any) is confirmed.

6.6 Noise and Vibration

a) Baseline Conditions

- 6.6.1 The closest private residential properties to the Site boundary that could be affected by noise associated with construction and demolition activities include: Rosary Cottages located approximately 500m south of the demolition activities and within 50m of the proposed outage car park at Pillbox Field; and properties in Sizewell village located approximately 210m east of the southern portion of the Site boundary. The locations of these receptors are shown on **Figure 3.1**. As described in **Section 3**, Rosary Cottages are owned by NGL.
- 6.6.2 Preliminary baseline survey work to date (unpublished data) at the nearest noise sensitive receptor (Rosary Cottages) to the south-west of the existing Sizewell power station complex indicates daytime ambient levels are typically 44dB and night time ambient is typically 41dB with the main environmental noise source being the Sizewell B station operational hum, distant traffic and birdsong. The monitoring was undertaken in 2013 (during an outage), 2014 and 2016 to account for change in existing conditions around the site, for example the construction of screening around the Greater Gabbard and/or Galloper Substations to the west of the Site (which took place between the 2013 and 2014 surveys). During the survey in 2014, some construction noise was noted (associated with activities at one or both of these sites) so a further survey was carried out in 2016 at a time when no construction work was in progress.
- 6.6.3 Additional baseline survey work (unpublished data) has also been carried out around sites at a greater distance from the Sizewell B site including Keepers Cottage and Sizewell village. Daytime ambient levels at these sites are typically 47 and 40dB and night time ambient levels were typically 41 and 28dB respectively.

b) Potential Environmental Impacts

i. Construction

Construction Noise

- 6.6.4 The key construction and demolition activities are described in **Section 3**. Of these, earthworks and steel frame construction have the greatest potential to have a noise and vibration effect.
- 6.6.5 Working hours (excluding emergency or maintenance works) are anticipated to be between 07:00 to 19:00 hours from Monday to Saturday. A 24-hour, 7 days a week security presence on site would be required. A number of activities (e.g. continuous concrete pouring and steelworks) would require 24-hour working and these would be defined and agreed with the local planning authority (SCDC) in advance.
- 6.6.6 The planning application will identify the construction environmental management arrangements, including a description of the construction methods and measures to be implemented to reduce potential nuisance or environmental effects. Appropriate limits (based on guidance in BS5228, Ref. 6.28) would be adopted for noise and vibration and methods introduced, if found to be necessary, to ensure that such limits are met.

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- 6.6.7 The potential for construction noise to impact upon nearby ecological receptors (i.e. breeding birds and bats within the wet woodland and beyond to the Sizewell Marshes SSSI) and also on users of nearby PRow's including Sandlings Walk (see **Figure 3.1**) will be considered as part of the ecology (see **Section 6.1**) and amenity and recreation assessments (see **Section 6.4**).

Construction Traffic Noise

- 6.6.8 During the construction phase, there would be a maximum of 70 HGVs (140 movements) per day at peak which could give rise to traffic noise impacts on residential receptors on the transport routes. However, this number of movements is not anticipated to give rise to levels above the Significant Observable Adverse Effect Level (SOEAL) assuming that the majority would occur between 07:00 and 23:00 hours (i.e. not at night). This will be confirmed as part of the impact assessment.

Construction Vibration

- 6.6.9 Over the majority of distances considered, vibration impacts from construction work on residential receptors are extremely unlikely as piling is not proposed as part of the construction methodology (refer **Section 3**). On the basis of the distance from the site (i.e. greater than 50m), no further assessment of potential vibration impact on residential receptors is proposed.

ii. Operation

- 6.6.10 The majority of facilities to be relocated are not intrinsically noisy during operation. Many of the facilities would be relocated within the existing Sizewell B site perimeter and since this site is already an operational nuclear power station and the noise and vibration source levels from relocated facilities would not be significant compared to those around them, it is considered that no further detailed assessment of the impact of these sources is necessary.
- 6.6.11 However, some of the replacement facilities to be located outside the Sizewell B site perimeter (which include the replacement car parking, laydown area, the visitor centre and the training centre) would result in some noise sources being brought closer to dwellings.
- 6.6.12 There may be some relatively small scale heating, ventilation and air conditioning (HVAC) plant associated with the training centre and visitor centre. These have some potential to have a noise impact over distances of up to 100m. Based on experience from similar facilities, noise from HVAC is likely to have a maximum aggregate level of no greater than 65dB LAeq at 10m when operated together. On the assumption that there were to be no screening around this (from buildings or other structures) the level at the closest receptor would be likely to be below the existing background level and consequently well below the threshold of significance. It is therefore considered that noise from HVAC would be scoped out of the EIA.
- 6.6.13 Noise associated with the periodic operations of the laydown area and car park in Pillbox Field (during day-time and night-time) are not anticipated to give rise to significant effects to nearby receptors, which are at sufficient distance from the Site, with the exception of Rosary Cottages. Rosary Cottages are owned by NGL and it is

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considered that potential noise effects could be readily mitigated. This will be confirmed as part of the noise assessment.

c) Proposed Assessment Methodology

i. Construction Noise

- 6.6.14 For the purpose of this assessment, noise and vibration sensitive receptors such as dwellings, hospitals, schools, places of quiet recreation are considered to be of 'medium' sensitivity.
- 6.6.15 Construction has the potential to result in adverse noise effects on Rosary Cottages. However noise levels at all other noise sensitive residential receptors, including Sizewell village, are not considered to be significant due to distance from the site. This will be confirmed through the assessment.
- 6.6.16 Where construction takes place for more than 40 days in any six months or 15 or more consecutive days (excluding major earthworks lasting more than six months) the magnitude would be assessed using the values in **Table 6.2**.

Table 6.2: Values to be used to assess the magnitude of impact for noise from construction noise

Period	Negligible	Very low	Low	Medium	High	Parameter
Mon-Fri 0700 to 1900, Saturday 0700 to 1300	<60	60-62.9	63-64.9	65-69.9	>70	L _{Aeq, T} , dB ¹
Monday to Friday 1900 to 2300; Saturday 1300 to 2300; Sunday and Bank Holidays 0700 to 2300	<50	50-52.9	53-54.9	55-59.9	>60	
Night 2300 to 0700	<40	40-42.9	43-44.9	45-49.9	>50	

1 Time period T in this table refers to the period in question: day (12 hours), evening (4 hours) or night (8 hours).

- 6.6.17 In line with the Noise Policy Statement for England (NPSE) (Ref. 6.29), the concept of Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL) has been established for the assessment of noise and vibration generating activities associated with Sizewell B. **Table 6.3** sets out descriptions for and actions in relation to these.

Table 6.3: Generic effect descriptions and actions recommended

Effect	Description	Action
Below LOAEL	Noise is either not noticeable or can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No specific measures required
Between LOAEL and SOAEL	Noise can be heard and causes small changes in behaviour and/or attitude, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived	Mitigate and reduce to a minimum

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Effect	Description	Action
	change in the quality of life.	
Above SOAEL	The noise causes a material change in behaviour and/or attitude, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Avoid

- 6.6.18 The descriptions and actions recommended in **Table 6.3** are based on the guidance in the Noise Policy Statement for England and associated guidance in the National Planning Practice Guidance (Ref. 6.30). Where a level is predicted to be above the Significant Observable Adverse Effect Level (SOEAL), this is considered to be significant.
- 6.6.19 The level of impact will depend on the level and character of the noise source, when it would occur, its duration and the frequency of its occurrence. Each different source type requires its own specific value for LOAEL and SOAEL, which depends on these factors. For construction noise, the LOAEL and SOAEL values would be defined as set out in **Table 6.4**.

Table 6.4: LOAEL and SOAEL values for construction noise

Period	LOAEL	SOAEL	Parameter
Mon-Fri 0700 to 1900, Saturday 0700 to 1300	60	70	$L_{Aeq, T}$, dB ¹
Monday to Friday 1900 to 2300; Saturday 1300 to 2300; Sunday and Bank Holidays 0700 to 2300	50	60	
Night 2300 to 0700	40	50	

¹ Time period T in this table refers to the period in question: day (12 hours), evening (4 hours) or night (8 hours).

- 6.6.20 Where levels are above the Lowest Observable Adverse Effect Level (LOAEL) and below the Significant Observable Adverse Effect Level (SOAEL), these would be mitigated and minimised, as appropriate.

ii. Construction Traffic Noise

- 6.6.21 This will be assessed by comparing the predicted construction vehicle flow rates with baseline flow rates and taking account of any changes in percentages of different vehicle types and the duration of these changes. Guidance in the Design Manual for Roads and Bridges (DMRB) (Ref. 6.31) on significance of road traffic noise increases during construction will be used as the basis for assessment of impact.
- 6.6.22 For construction traffic noise, the LOAEL and SOAEL values would be subject to thresholds of 55 dB, $L_{Aeq, T}$ (where T is 1 hour). On the basis that 'with development' traffic flows are below 200 vehicles per hour, the values in **Table 6.5** would apply when considering the magnitude of the increase.

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Table 6.5: Values to be used to assess the magnitude of impact for noise from road traffic noise

Traffic flow rate	Negligible	Very low	Low	Medium	High	Parameter
<201 vehicles / hour	0-1.9	2-2.9	3-4.9	5-9.9	>10	$L_{A10, 1h}$, dB.

- 6.6.23 The LOAEL and SOAEL values for the road traffic noise would therefore be defined as $+2dB.L_{A10, 1h}$ and $+10dB L_{A10, 1h}$.

iii. Operational Noise

- 6.6.24 As described previously, operational noise associated with HVAC plant at the training centre and visitor centre is not considered to give rise to significant effects and is therefore scoped out from further assessment.
- 6.6.25 Noise from the periodic operation of the outage car park and the laydown area are not anticipated to give rise to significant noise effects to nearby receptors due to distance from the site, with the exception of Rosary Cottages which are owned by NGL.

6.7 Land Quality and Hydrogeology

a) Baseline Conditions

i. Ground Conditions

6.7.1 Published geological records show that the solid geology beneath the Site comprises the Crag Group; marine and estuarine sands, gravels, silts and clays deposited on the south-west flank of the North Sea Basin and are part of a sequence of deposits present along the Norfolk and Suffolk coastline. This is separated from the underlying Chalk by Palaeogene deposits, including London Clay (part of the Harwich Formation) and the Lambeth Group. Bedrock geology in the area dips towards the south-east. The Palaeogene deposits become thinner in a westerly direction from the Site, becoming absent at a distance of approximately 8-10km (Ref. 6.32). **Table 6.6** summarises the published geological records for the Site.

Table 6.6: Summary of published geological conditions at the Site

	Name	Description	Location
Bedrock	Crag Group (Red Crag Formation)	Sand, with minor gravel, silt and clay layers.	Present along the eastern coast of Norfolk and Suffolk and as such, underlies the entire Site. To the west of the Site the Crag Group is overlain by the Lowestoft Formation, Peat or other superficial deposits.
	Palaeogene Deposits (Harwich and Lambeth Group)	Layered deposits comprising sands, silts, clays, volcanic ash and pebble beds.	The Palaeogene Deposits underlie the Site and are present throughout the region, thinning to the west and become absent at a distance of approximately 8-10km west of the Site.
	Chalk	Soft, white porous limestone with extensive fissuring, flint beds, marl layers and hard ground (“Chalk Rock”).	Chalk is present throughout the region and as such, underlies the entire Site. The Chalk is overlain by the Palaeogene Deposits at the Site, however to the west, where the Palaeogene Deposits are absent, Chalk is overlain by the Crag Group.

6.7.2 Made Ground is expected to be encountered at the Site to a varying degree. This is mainly due to either the development locations being previously used for Sizewell B (e.g. from the existing buildings and car parks being relocated and the laydown area) or being underlain by services (e.g. the now disused Sizewell A reservoir services located adjacent to and running beneath the northern part of Coronation Wood). Made Ground is also anticipated to be present to the north of Sizewell B due to use of the area previously during the construction of Sizewell B. Excavated material would be stockpiled temporarily in this area during construction of the relocated facilities.

6.7.3 Where the ground is undisturbed the soils are developed on glacio-fluvial sands and are described as being freely draining, slightly acidic sandy soils (Ref. 6.33). In previously undertaken soils surveys (unpublished data) in this area the soils around Sizewell have been confirmed to comprise deep loamy sands, frequently with some stony layers at depth. Subsoils are loose and sandy with little cohesion. These

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permeable sandy soils are generally Wetness Class 1 and described as droughty. They are naturally acidic and liming is required for a range of crops. They have been mapped as Grade 4 under the Agricultural Land Classification system (Ref. 6.34). The sandy nature of these soils would make them prone to erosion.

- 6.7.4 Immediately to the west of the site the soils comprise deep peat and clay soils belonging to the Mendham Association. These are described as being deep peaty and clayey soils which, on oxidation of the sulphides they contain, can become very acidic. These soils are very slowly permeable and require drainage for any kind of agricultural use.
- 6.7.5 As the land quality is low and does not fall within the best and most versatile grades (i.e. Grade 1 to Sub-grade 3a), and the land is not in agricultural use, no potential impacts have been identified in relation to agriculture. Impacts on agricultural land are therefore scoped out of the EIA (refer to **Section 7**).
- 6.7.6 Soils recovered from the site would be managed in accordance with best practice (Ref. 6.35).

ii. Hydrogeology

- 6.7.7 The Made Ground within the Site is thought to be permeable as it is composed principally of sand and gravel with some clay, and is therefore likely to be in hydraulic continuity with the underlying Crag aquifer. It is considered that there may be locally perched water tables within the Made Ground where cohesive deposits are present.
- 6.7.8 The Crag and the Chalk aquifers are classified as Principal Aquifers by the Environment Agency. Principal Aquifers are capable of providing a high level of water, supporting water supply and/or baseflow to rivers. The deeper Chalk aquifer is separated from the Crag by the London Clay which is part of the Harwich Formation and generally classified as Unproductive Strata. This is likely to act as an aquiclude and provide a physical separation between groundwater in the underlying Chalk and overlying Crag. The Chalk aquifer is therefore not considered further.
- 6.7.9 Superficial deposits, comprising the Lowestoft Sands and Gravels and Beach deposits are classified as Secondary aquifers. Peat deposits, which are not classified as an aquifer by the Environment Agency, can be considered to be of similar significance to the formally classified Secondary aquifers. These deposits are not shown as present at the Site on published maps, but site investigations indicate that they are more extensive and do occur beneath the northernmost part of the Site. They are in hydraulic connection with the underlying Crag aquifer.
- 6.7.10 The Site is located on the Waveney and East Suffolk Chalk and Crag groundwater body (Water Framework Directive reference GB40501G400600) (Ref. 6.36). This groundwater body has been classified by the Environment Agency as being of Good Quantitative status but Poor Chemical status. The Poor Chemical status is attributed to impacts from agriculture as evidenced by elevated nitrate concentrations in groundwater. Nitrate concentrations in groundwater to the west of the Site have exceeded Drinking Water Standards and the area falls within a Nitrate Vulnerable Zone.

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- 6.7.11 The Crag aquifer supports a number of licensed and private water supplies. The Environment Agency website (Ref. 6.37) shows that there are no groundwater Source Protection Zones (SPZs) within the Site boundary, and the closest SPZs are for two sources located approximately 3km west of the Site. SPZs are present to help monitor the risk of contamination from activities that may cause pollution in that area.
- 6.7.12 A diaphragm wall was constructed at Sizewell B extending through the Crag deposits and forming a seal with the London Clay. After the completion of below ground construction at Sizewell B a 350m section of the seaward side of the wall was cut down to -0.8 m AOD to prevent groundwater levels rising within the enclosure due to recharge from rainfall. The remaining length of wall was left in place. The wall has resulted in an increase in groundwater levels to the west of the wall in the Sizewell Marshes SSSI and beneath the northernmost part of the Site (Ref. 6.38).
- 6.7.13 Groundwater level and quality monitoring has been undertaken for the Crag and overlying superficial deposits and has been focussed on understanding the groundwater conditions which influence the sustainability of the SSSIs to the west of the Site. Groundwater flow in the Crag is to the east and towards the coast with a component of groundwater discharge to the Sizewell Marshes SSSI and the Minsmere-Walberswick Heaths and Marshes SSSI.
- 6.7.14 Groundwater quality monitoring indicates a transition from fresh calcium carbonate water to the west of Sizewell towards more saline waters at the coast.
- 6.7.15 In summary, the key groundwater receptors are:
- the Crag aquifer;
 - surface water bodies, principally the Sizewell Drain and associated minor drains fed, in part, by groundwater and surface water run-off;
 - private and Environment Agency licensed groundwater abstractions; and
 - Minsmere-Walberswick Heaths & Marshes SSSI and SAC and Sizewell Marshes SSSI.
- 6.7.16 The Chalk aquifer is not considered to be at risk due to the protection provided by the overlying London Clay.

iii. Existing Ground Investigations

- 6.7.17 A land and offshore ground investigation (GI) was undertaken for the proposed Sizewell C power station site in 1994 (Ref. 6.39). The area investigated is within the Sizewell B Relocated Facilities red line boundary and as such is relevant for the proposed development. The GI was undertaken primarily for geotechnical purposes and no contamination testing was undertaken. A total of 84 boreholes were put down across the site (on- and off-shore) by a combination of rotary and cable percussion methods. Soil samples were obtained for geotechnical purposes and there is no mention of groundwater or ground gas monitoring having been undertaken in the report.
- 6.7.18 In 2012, a Phase 2 study of the dry fuel store area at Sizewell B (Ref. 6.40), located within the red line boundary for the Relocated Facilities, was undertaken. This report used data from a GI undertaken in the area in 2009. The number of holes drilled

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during the 2009 GI and the maximum depth achieved is not specified. Contamination testing was undertaken on 20 soil samples and comprised a suite pertinent to the site's history. No soil leachate or groundwater sampling and analysis was completed. No visual or olfactory evidence of contamination was noted during the 2009 GI. A human health and controlled waters qualitative risk assessment were carried out in accordance with guidance current at the time of writing. It was found that there were no potential contaminants of concern present at the site and therefore no unacceptable risk to human health or controlled waters receptors exists. No further investigations were considered necessary.

- 6.7.19 A GI at Coronation Wood, located within the red line boundary for the proposed development, was undertaken between 8 and 26 February 2016 (Ref. 6.41). The GI was undertaken primarily for geotechnical purposes, but did include some contamination sampling / testing and radiological analysis of groundwater. The scope of works included the installation of four boreholes by cable percussion methods (25 – 35m in depth) and machine excavation of a further four trial pits (3.0 – 3.2m in depth). Eight soil samples were analysed from the four boreholes for a suite of contaminants pertinent to the site's history. No soil leachate or groundwater sampling was completed for contamination purposes, although groundwater samples were obtained from all four boreholes for radiological analysis. There was no groundwater or ground gas monitoring undertaken during the GI. No visual or olfactory evidence of contamination was noted during the GI. A detailed human health risk assessment has not been undertaken for the site, however, the soil analysis results were compared to appropriate soil screening values for the site (in accordance with guidance current at the time). No contaminants exceeded their respective screening values and no asbestos was detected in the eight soil samples analysed. As such, no unacceptable risk to human health is likely to exist at Coronation Wood.

iv. Potential for Existing Contamination

- 6.7.20 A number of historical Ordnance Survey (OS) and County Series maps have been reviewed to identify potential historical sources of contamination which may be present at and adjacent to the development areas. In addition, site information has been added where known. This information has been used to identify the main potential sources of contamination on and within 500m of the Site. The findings are summarised in **Table 6.7**.

Table 6.7: Potential sources of contamination

Potential source of contamination	Potential associated contaminants
Power station activities at Sizewell A and Sizewell B (including associated infrastructure)	A range of inorganic and organic contaminants, together with oil/fuel/hydrocarbons, polychlorinated biphenyls (PCBs) and radioactive material (see Section 6.9). Asbestos is thought to be present within the lagging of the two disused Sizewell A reservoir tanks west of Coronation Wood.
Agricultural land including widespread application of fertilisers, pesticides etc., localised spills of fuel from machinery.	A range of inorganic and organic contaminants including pesticides, fertilisers and fuels/oils/hydrocarbons.
Spoil/construction materials and Made Ground from construction of the Sizewell A and	Various organic and inorganic contaminants from spoil, depending on what the spoil contained.

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Potential source of contamination	Potential associated contaminants
Sizewell B power station.	Potential for ground gas generation if organic/biodegradable materials present.
Contractors' storage/works for the proposed development, including machinery storage, concrete batching.	Diesel/oils/fuels hydrocarbons. Various contaminants from storage areas, depending on what was used/stored.
Historical landfills within 500m of the Site	Inorganic and organic contaminants could have migrated to the Site during operation and could still be migrating under the Site in groundwater, together with the potential for migration of landfill gas and vapours.
Infilled sand and clay pits on and in the vicinity of the Site.	Various contaminants from filling materials, depending on material used/deposited but may include a range of inorganic and organic contaminants including the potential for ground gas generation.
Greater Gabbard electricity substation to the west of the Site (south and west of Sandy Lane)	A range of inorganic and organic contaminants such as metals, fuels, oils and PCBs.

v. Unexploded Ordnance

6.7.21 In addition to the potential sources of contamination identified in **Table 6.7**, there is also a risk of encountering Unexploded Ordnance (UXO) at the Site. This is because the wider Sizewell site was used as a Military Training Area during WWII and prior to this there was a rifle range located in Pillbox Field. A Preliminary UXO risk assessment for the wider Sizewell site was undertaken in January 2013 (unpublished data). This identified that the proposed locations of the training centre, visitor centre and Pillbox Field are considered to be medium to high risk areas.

b) Potential Environmental Impacts

6.7.22 The proposed development is anticipated to comprise the following activities, which have the potential to affect Land Quality and Hydrogeology:

- vegetation and tree removal;
- construction of the Site boundaries including hoardings and Site access;
- isolation of services above and below ground level including the isolation and relocation of the services, as required;
- removal of the disused Sizewell A reservoirs;
- construction of a pedestrian bridge connecting to Pillbox Field;
- earthworks, including retaining walls and excavations;
- substructure works including drainage connections to underground services, and ground floor slabs;

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- building/facility construction including of steel frame and concrete structures, use of pre-cast concrete, cladding and roofing, and associated hardstanding car parking facilities; and
- planting and screening, as appropriate.

i. Construction

- 6.7.23 The proposed development would create areas of hardstanding that would reduce infiltration to the ground and potentially increase surface water run-off, depending on drainage design. The change in infiltration and the influence on groundwater levels and flow will be assessed using analytical and, if appropriate, numerical models.
- 6.7.24 The construction phase would potentially introduce new sources of contamination, such as fuels used during this phase and construction workers which become a new receptor. Construction activities may also introduce new pathways for migration of potential existing contamination such as excavation into existing contaminated material, introduction of new foundations and service routes and the disturbance of the potential asbestos lagged reservoir tanks. Potential changes include:
- Potential for exposure of Asbestos Containing Materials (ACM) and release of asbestos fibres associated with the disused Sizewell A reservoir tanks.
 - Potential for mobilising contaminants by excavation and stockpiling material. This would increase the risk to controlled water receptors through leaching and run-off. Earthworks could provide opportunity for run-off to contain suspended solids if not managed properly.
 - Potential for newly constructed below ground structures to create preferential pathways for the migration of existing contamination.
 - Potential for exposure of human receptors by generation of potentially contaminated dust released by the construction works.
 - Potential for exposure of construction workers to existing potential contamination because of direct contact (dermal contact/ingestion) with these materials.
 - Potential for release of potentially polluting substances used during the construction phase, for example, spillages of oil or fuel from equipment or vehicles, particularly in construction compound.
 - Potential that waste generated is classified as hazardous, requiring removal from site. According to Schedule 3 of the EIA Regulations, the characteristics of the proposed scheme must be considered having regard, in particular, to the production of waste.
- 6.7.25 It is assumed that material excavated during the construction phase of works would be reused on-site if it can be demonstrated that the material is suitable for use, otherwise it would be disposed off-site at an appropriately licensed facility (see **Section 3**).
- 6.7.26 The contamination risk associated with the land within Coronation Wood is considered to be low because it is has not previously been developed other than where discrete services have been laid along the north and north-western edges. However, the contamination risk from the former reservoir tanks to the west of Coronation Wood is high due to the unconfirmed presence of asbestos lagging.

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6.7.27 Potential risks from encountering UXO within the Site are considered to be moderate assuming that appropriate management measures are in place, such as a UXO Management Plan at the Site and the undertaking of UXO safety and awareness briefings and a non-intrusive geophysical survey.

ii. Operation

6.7.28 Infiltration to the ground would be reduced by buildings, areas of hardstanding and drainage infrastructure. There would be altered patterns of infiltration because of changes in vegetation. Existing structures to the north of Sizewell B would be removed. The net change in recharge to the Crag will be determined and the impact on groundwater will be assessed using standard analytical techniques and numerical models if appropriate.

6.7.29 Surface water run-off from the Site would be managed by infiltration to the ground, discharged directly to the sea or to Sizewell Drain at the greenfield run-off rate, thereby limiting as far as possible significant changes to flows. Drainage design will be undertaken and discharge options will be assessed to determine the most suitable solution.

6.7.30 Once the construction phase is complete the remaining structures would be demolished. Without mitigation, the following potential operational effects of the scheme have been identified:

- additional contaminant migration pathways via the disturbance of ground during demolition; and
- new below ground services could create additional potential pathways for the migration of potential contamination which were not present at baseline.

6.7.31 Construction workers would no longer be present and operational phase human receptors would be the same as those identified as part of the baseline. Controlled water receptors (groundwater and surface water) would be the same as the baseline.

6.7.32 There is potential to result in a slight improvement because mitigation during construction would have reduced potential historical contamination present, through its removal (or rendering it suitable). Therefore, the potential risk from contamination would decrease.

c) Proposed Assessment Methodology

i. Land Quality (Land Contamination)

6.7.33 There is a wide range of legislation, policy and guidance documents which relate to assessing and managing land contamination. The main documents that will be referred to for the assessment are:

- the NPPF;
- Part 2A of the Environmental Protection Act (EPA) 1990 (Ref. 6.42);
- Defra Contaminated Land Statutory Guidance 2012 (Ref. 6.43);
- Contaminated Land Report (CLR) 11 (Ref. 6.44); and
- Guiding Principles for Land Contamination (GPLC) (Ref. 6.45).

6.7.34 It is proposed to undertake a two stage approach to the assessment as follows.

Stage 1 – Risk Assessment

6.7.35 The approach for the ground conditions risk assessment is based on the Environment Agency's guidance document CLR11 and the Good Practice Guide to EIA. These documents provide a technical framework for the application of a risk management through the following generalised steps:

- **Development of a Preliminary Conceptual Site Model (PCSM).** A desk study review of available documentary information has been undertaken to identify the potential hazards/sources, pathways and receptors relevant to the Site and the potential contaminant linkages (PCLs) and geo-environmental hazards.
- **Gather site-specific information on the CSM.** There have been three previous Ground Investigations (GIs) undertaken within the indicative development boundary to date; in 1994, 2009 and 2016 (Ref. 6.39, 6.40 and 6.41). The latter two are the only GIs whereby contamination testing was undertaken. The information from the 2009 GI was assessed in a Phase II report for an area of the Site in 2012. The 2016 GI was undertaken at Coronation Wood. Details from both of these reports have been used to help develop the PCSM. The requirement for any further GI (including contamination sampling) for the purposes of the Environmental Assessment that will accompany the planning application will be determined as part of the EIA following consultation with the Environment Agency.
- **Risk assessment.** Following review of GI information, including analytical data, generic quantitative risk assessments (GQRA) for human and groundwater receptors can be undertaken and the outcome of these used to inform a judgement as to whether the concentrations of contaminants in soil, soil leachate and groundwater represent a potential risk. This is achieved through the comparison of analytical data to generic assessment criteria (GAC)². Using the information from the GI and the GQRAs, the CSM can be updated to include an estimation of the level of risk of each PCL identified during the baseline, construction and operational phases. Where risks are identified, these would be appropriately mitigated through design and/or the development of a remediation strategy and its subsequent validation as necessary. The residual risks are determined and assessed based on the likelihood and consequence.

6.7.36 The proposed approach to risk assessment applies the principles given in the NHBC and Environment Agency report R&D66 (Ref. 6.46), which provides guidance on the development and application of the consequence and probability matrix to contaminated land risk assessment. This assessment approach enables an estimation of the level of risk associated with the scheme. The methodology will be applied for the baseline (current) conditions, construction and demolition and operational phases.

² GAC are concentrations of a contaminant in soil or groundwater below which the level of risk is considered acceptable.

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Stage 2 – Impact Assessment

- 6.7.37 The impact assessment shall be undertaken by comparing the baseline risk assessments with the construction phase and the operational phase risk assessments. This approach enables changes in the ground conditions and contaminated land status during the construction or operational phases to be identified, an assessment of impact made and appropriate mitigation measures incorporated.
- 6.7.38 There is no approved methodology of guidance for EIA for Land Quality. The methodology will be described in more detail in the ES, but will take into account the area over which the effect would occur, whether it is temporary or permanent, and its duration.
- 6.7.39 The range of beneficial and adverse effects which are considered likely to arise from the proposed works and the likely significance shall be reported. An assessment will also be undertaken to identify measures that would be incorporated into the detailed design of the scheme to reduce negative effects, or enhance positive effects.

ii. Hydrogeology

- 6.7.40 There is a wide range of legislation, policy and guidance which relates to the protection of groundwater and surface water. The main documents that will be referred to for the assessment are:
- Groundwater Protection: Principles and Practice (GP3) guidance (Ref. 6.47);
 - Water Environment (Water Framework Directive) (England and Wales) Regulations 2003;
 - Environmental Permitting Regulations (England and Wales) 2010 (Ref. 6.48);
 - Environment Agency Anglian River Basin Management Plan (Ref. 6.49);
 - The East Suffolk Catchment Abstraction Management Strategy (Ref. 6.50);
 - Water Act 2003 (Ref. 6.51);
 - Water Resources Act 1991 as modified (Ref. 6.52);
 - Water Framework Directive 2000;
 - Environment Act 1995 (Ref. 6.53);
 - National Planning Policy Framework on Water Supply, Wastewater and Water Quality (Ref. 6.54); and
 - Suffolk Coastal District Local Plan (Ref. 6.55).
- 6.7.41 There are also numerous best practice documents that provide guidance on ensuring that developments do not result in adverse hydrological, drainage and water quality impacts such as the Sustainable Drainage Systems Manual (Ref. 6.56) and the Environment Agency Pollution Prevention Guidance (PPG) notes (Ref. 6.57).
- 6.7.42 The assessment will consider the effects of the proposed construction and operational phases on the following resources and receptors:
- Principal Crag Aquifer;

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- Private and Environment Agency licensed groundwater abstractions; and
- Minsmere to Walberswick Heaths & Marshes SSSI and SAC and Sizewell Marshes SSSI.

- 6.7.43 The Chalk aquifer is not considered to be a risk because of the protection provided by the overlying London Clay.
- 6.7.44 The assessment will aim to establish that there is no deterioration in the status of groundwater and dependent waterbodies (including SSSIs), and no exceedance of environmental water quality standards (e.g. Drinking Water Standards, Environmental Quality Standards) at relevant receptor locations.
- 6.7.45 Changes in groundwater and surface water levels, flow and quality will be assessed in relation to the baseline conditions.
- 6.7.46 Groundwater monitoring data are available for the period 2011 to 2015. This dataset will be used to undertake baseline characterisation and will be supplemented by any newly available information.
- 6.7.47 Potential changes in groundwater level and flow will initially be considered qualitatively against current baseline conditions. Where required, a more detailed quantitative appraisal of potential impacts on groundwater levels and flow would be undertaken to determine the magnitude and extent of potential changes. This would be carried out using analytical solutions in the first instance. Should the analytical appraisal indicate a significant impact more detailed appraisal would be carried out using 2D or 3D modelling software.
- 6.7.48 The assessment criteria which will be used are based on the methodology for appraising the impact of projects set out in the Department for Transport's (DfT) Transport Analysis Guidance (TAG) Unit 3.3.6 (Ref. 6.58) and the specific guidance for the water environment sub-objective set out in TAG Unit 3.3.11. Although this methodology has been developed for the assessment of road and bridge projects it can be used to assess the impacts of other developments such as this development.
- 6.7.49 The methodology takes into account the importance, magnitude, and significance of predicted impacts on the water environment. Importance is based on the value of the feature or resource, where the magnitude of a potential impact is estimated based on the likely effects and is independent of the importance of the feature.
- 6.7.50 The significance of a specific potential effect is then derived by considering both the importance and sensitivity of the feature and the magnitude of the impacts (impacts must be quantified where possible, also estimating change from the baseline conditions and the range of uncertainty). The significance of the effect will be identified, after which opportunities for further environmental enhancement can be considered.
- 6.7.51 At this stage, the following assumptions and limitations have been identified with respect to the groundwater environment:
- calculations to determine baseline water quality conditions will be derived from a limited number of sampling campaigns;

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- environmental Quality Standards prescribed for downstream designated Water Framework Directive (WFD) water bodies will be adopted for upstream watercourses for the purpose of the assessment; and
- the assessment assumes that water discharges, during all phases of development, will be subject to different waste streams (i.e. surface water run-off and treated sanitary effluent).

- 6.7.52 In summary, based on the baseline information and the nature of the proposed development it is considered that there will be no significant environment effects with regard to agricultural soils or geology such that these topic areas are proposed to be scoped out of the EIA.
- 6.7.53 The proposed development has the potential to give rise to environmental effects with regard to land quality (land contamination) and hydrogeology and these topics will be assessed as part of the EIA.
- 6.7.54 There is not considered to be any potential for significant environmental effects on the Chalk aquifer due to the thickness of low-permeability Paleogene deposits present and the Chalk receptor is therefore scoped out of the EIA.

6.8 Surface Water and Flood Risk

a) Baseline Conditions

i. Surface Hydrology

- 6.8.1 A number of watercourses are present in the area that surrounds the Site. A network of drains lies to the west of the Sizewell power station complex, which form part of the Sizewell Marshes SSSI. The drainage unit receives water from the surface catchment draining the higher ground to the south and south-west, to the east of Leiston. In addition, groundwater contributes to surface water flows in the eastern parts of the marshes (note that the opposite occurs in the western parts of the drainage unit).
- 6.8.2 The largest of the drains within the eastern marshes is Sizewell Drain (IDB Drain DRN163G0202), which originates at Sizewell village, immediately south of Sizewell A power station. Sizewell Drain flows in a northerly direction along the western edge of the existing Sizewell power station complex (passing through a small section of the Site between Pillbox Field and Coronation Wood), before draining under gravity to the Leiston Drain to the north. The majority of flow follows two parallel, interconnected channels. The majority of the proposed development would take place to the east and north of Sizewell Drain.
- 6.8.3 Leiston Drain rises near Abbey Road in Leiston, from where it flows in an easterly direction until it reaches Lover's Lane, from where it continues to flow east through Sizewell Marshes SSSI. From here, it flows in a northerly direction in an artificial channel along the coast until it discharges into the sea at Minsmere Sluice, approximately 1.8km north of the Site of the proposed development. Flows are generally very low, and the discharge from Leiston Sewage Treatment Works (STW) accounts for, on average, 40% of flows in Leiston Drain. Changes to water levels in Leiston Drain and connected watercourses in Sizewell Marshes SSSI occur in synchronicity with changes in Peat groundwater levels, which demonstrates that surface and groundwaters are closely interrelated. Drainage in the entire Leiston Drain system, including Sizewell Drain and Sizewell Marshes SSSI, is ultimately governed by tide-locking and the capacity of the Minsmere Sluice.
- 6.8.4 Within the marshes there is a network of surface water drainage channels, which can be described as artificial trapezoidal channels with high water levels and no discernible flow. Water levels in the Sizewell Marshes SSSI are managed via a series of sluices in the surface water drainage channels. In winter the marsh ditches are typically full of water, and most of the adjacent fields are waterlogged. In summer water levels in the ditches vary but they are generally between half and two thirds full, however ditches around the southern margin of the marsh can be dry. During the summer months fields in the marshes are no longer waterlogged, but remain near field capacity.

ii. Geomorphology

- 6.8.5 The surface watercourses in the area are typical of lowland, low energy drainage systems. Many of the channels are entirely artificial, and the natural channels have been extensively modified.

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- 6.8.6 As a result of these modifications, the watercourses typically have uniform, trapezoidal channels with steep to near-vertical banks, and very low energy flows. The banks and riparian zone are generally heavily vegetated, with extensive emergent vegetation communities and floating vegetation found in large parts of the drainage network. The substrate is largely obscured, but typically consists of fine sediments (silts and clays) when they flow over the peat, and fine sediments over a coarser matrix (gravels) when the watercourses flow over the underlying Crag.

iii. Water Quality

- 6.8.7 Water quality in the drainage catchments is generally good. However, parts of Leiston Drain are affected by consented discharges from the Leiston Sewage Treatment Works (which includes Combined Sewer Overflows from Leiston) and display elevated concentrations of ammonia, nitrate, nitrite and phosphate. In addition, the upstream end of Sizewell Drain is affected by road run-off, displaying elevated concentrations of total petroleum hydrocarbons and several specific pollutants or Priority Substances under the Water Framework Directive (WFD).
- 6.8.8 Low dissolved oxygen levels are noted as a particular feature across the entire study area, with all monitoring sites failing to achieve the 60% dissolved oxygen saturation WFD 'Good' standard. Consultation with the Environment Agency in 2014 confirmed that low dissolved oxygen concentrations are a typical feature of surface watercourses in the vicinity of the Suffolk coastline.
- 6.8.9 Water quality in the surface watercourses is also influenced by the input of saline water from Minsmere Sluice, which results in elevated salinity and sulphate levels in the surface waters. The refurbished sluice is deliberately operated to allow some saline intrusion into Leiston Drain and Scott's Hall Drain at high tide.

iv. Flood Risk

- 6.8.10 The existing Sizewell B facilities are predominantly within Flood Zone 1 (having a less than 1 in 1,000 annual probability of river or sea flooding (<0.1%)), although parts of Pillbox Field and some areas to the north are partially within Flood Zones 2 and 3 according to the Environment Agency's publically-available flood mapping service.
- 6.8.11 The Site of the proposed relocated facilities is generally within the existing Sizewell B site. Although the locations of the laydown area, visitor centre and training centre and operational car parking would be located between the existing Sizewell B site perimeter and the Sizewell Drain, these areas are Flood Zone 1 (very low flood risk).
- 6.8.12 The topography of the existing Sizewell B site and adjacent area east of Sizewell Drain where the majority of the relocated facilities are proposed is over 5m AOD. The majority of the Site of the proposed relocated facilities is raised above the Sizewell Marshes SSSI area and the Sizewell Drain watercourse that runs adjacent to the Site. The majority of the proposed outage car park in Pillbox Field is also over 5m AOD, except the northern edge and access track to the south.
- 6.8.13 The closest relocated facility to the coast is approximately 200m west of the coastline (and approximately 260m from the shoreline). An existing coastal defence is located along the eastern edge of the Sizewell B site.

b) Potential Environmental Impacts

i. Construction

6.8.14 The construction activities described in **Section 3** have the potential to cause impacts on surface water receptors, including:

- alteration of surface water flows entering the Sizewell Drain, as a result of earthworks and changes in land use. This could impact upon the hydrology and geomorphology of the surface water system and affect flood risk;
- construction of the pedestrian walkway from Pillbox Field, including crossing the Sizewell Drain;
- increased sediment supply to surface waters through earthworks and erosion of exposed soils by surface run-off, which could impact upon geomorphology and surface water quality;
- supply of construction materials (including concrete) to surface waters as a result of surface run-off or accidental spillage, which could impact upon surface water quality;
- supply of contaminants to surface waters from existing buildings through surface run-off or accidental spillage during demolition, which could impact upon surface water quality; and
- supply of fuel oils and lubricants to surface waters during construction and demolition, as a result of accidental spillage or leakage from construction vehicles, which could impact upon surface water quality.

ii. Operation

6.8.15 Land use within the Site is currently a combination of hardstanding, grassland, and woodland. The operational site would incorporate different facility footprints and an increased area of impermeable ground.

6.8.16 The proposed development therefore has the potential to cause several impacts on surface water receptors during the operation phase, as detailed below:

- change in surface water run-off within the Site, and from the Site to the Sizewell Drain, as a result of changes in land use, an increase in impermeable area and new or increased piped discharges during operation. This could impact upon the hydrology and geomorphology of the surface water system and affect flood risk; and
- supply of sediment, fuel oils, lubricants and other contaminants to surface waters during construction and operation, as a result of accidental spillage or leakage from vehicles using the site. This could impact upon surface water quality.

6.8.17 Since the proposed outage car park in Pillbox Field is located partially in Flood Zones 2 and 3, there is some potential for inundation to result in the remobilisation of contaminants.

6.8.18 It is assumed that no activities with a direct impact on nearby surface waters would be required as part of this work beyond the SUDS discharge and the piped discharges from new areas of hardstanding (i.e. there would be no direct alterations to the drainage channels themselves).

c) Proposed Assessment Methodology

i. Surface Water Hydrology, Geomorphology and Water Quality

- 6.8.19 There are a number of best practice documents that provide guidance on ensuring that developments do not result in adverse hydrological, water quality and geomorphological (i.e. resulting from changes to flows and sediment supply) impacts. These include the Sustainable Drainage Systems Manual and the Environment Agency's Pollution Prevention Guidance (PPG) notes (including PPG01, PPG05, PPG08 and PPG21; although they have officially been withdrawn, the PPG notes remain valid as good practice guidance). The methodology to be adopted to assessing potential environmental effects is described in **Section 5**.
- 6.8.20 The assessment will use an expert judgement approach to assess the potential impacts of the proposed development on surface water receptors. This will be informed by a detailed baseline characterisation and, if applicable, outputs from the parallel FRA and groundwater (see **Section 6.7**) assessments.

ii. Flood Risk Assessment (FRA)

- 6.8.21 The flood risk section of the EIA will be informed by desk-based assessment/review of available data from the Environment Agency and Lead Local Flood Authority (LLFA), as well as by a site visit. The desk based assessment will consider information such as:
- topographical survey data;
 - sewer and drainage information for Sizewell B;
 - information on the residual life of the facilities being constructed within Sizewell B;
 - previous site investigation data from Sizewell B; and
 - flood mapping and hydrological investigations carried out by the Environment Agency.
- 6.8.22 As the proposed outage car park in Pillbox Field is located partially in Flood Zones 2 and 3 and the Site covers an area larger than one hectare, the NPPF requires that a site specific FRA is undertaken in accordance with the guidance set out within the NPPF. The FRA will inform the identification of any required mitigation measures. Liaison with the design team will take place to discuss flood risk impacts which could be mitigated through the design.
- 6.8.23 Consultation with the Environment Agency will confirm the detail of the approach to be taken to this assessment. The FRA will be undertaken in parallel with the EIA and presented in a separate report in support of the planning application.

iii. Water Framework Directive (WFD) Compliance

- 6.8.24 There are two surface water bodies, as defined under the Water Framework Directive (European Council Directive 2000/60/EC establishing a framework for Community action in the field of water policy), within or immediately downstream of the Site.
- 6.8.25 The land immediately to the west of the Site forms part of the Leiston Beck river water body (GB105035046271), which currently has Moderate Ecological Potential (as defined by the Environment Agency) due to a lack of mitigation measures to address

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hydromorphological pressures. This river joins the Minsmere Old River water body (GB105035046270), which currently has Moderate Ecological Potential due to pressures on fish and a lack of mitigation measures to address hydromorphological pressures.

- 6.8.26 The whole site is underlain by the Waveney and East Suffolk Chalk and Crag groundwater body (GB40501G400600). The water body is currently at Poor Quantitative Status as a result of an unfavourable water balance, and Poor Chemical Status as a result of diffuse pollution pressures and potential impacts on a Drinking Water Protected Area.
- 6.8.27 Consultation with the Environment Agency will be undertaken to determine the requirement for a WFD Compliance Assessment to be undertaken as part of the EIA.

6.9 Radiological

a) Baseline Conditions

- 6.9.1 This section summarises the data gathered on the background radioactivity levels found in the vicinity of the Site.
- 6.9.2 Everyone in the UK is exposed to background levels of ionising radiation from both natural and man-made sources. The 2010 review of ionising radiation in the UK by the Public Health Agency (Ref 6.59) evaluated the overall average annual dose as approximately 2.7millisieverts (mSv) (a measure of radiation dose). Natural contributions (e.g. from radon gas and cosmic rays) vary according to location, whilst exposure to man-made sources varies according to occupation, lifestyle and location. Natural sources contribute on average 84% of the total annual dose to members of the public. The highest man-made contributor to dose is medical exposure (e.g. medical X-rays) providing on average 15% of the total annual dose. On average discharges of radioactivity into the environment from industry contributes less than 0.04% a year of the total dose received.
- 6.9.3 The historical and current permitted discharges from the Sizewell A and Sizewell B power stations contribute to the background radioactivity levels around the proposed development. The nuclear site operators and regulators undertake environmental monitoring programmes around the Sizewell site.
- 6.9.4 The Radioactivity in Food and the Environment (RIFE) published by the Environment Agencies and Foods Standards Agency (Ref. 6.60) reports conditions around each of the UK's nuclear sites; these results take into account the impacts of historical discharges as well as natural and any other anthropogenic sources. For the area around Sizewell the report concluded:
- “The total dose from all pathways and sources was 0.020 mSv in 2014 (Table 4.1) or 2 per cent of the dose limit, and similar to the value of 0.021 mSv in 2013. As in recent years, the dominant contribution to total dose was from direct radiation and the representative person was an adult living in the vicinity of the site. Dose from this pathway has reduced by a factor of three since Sizewell A ceased generation in 2006.”*
- 6.9.5 The dose received to members of the public from direct radiation from the Sizewell site is reported in RIFE as 0.020 mSv per year. An assessment of the direct radiation from the Sizewell B Dry Fuel Store shows that, even when the store is full, the radiation exposure to a member of the public spending several hours per week in the proposed visitor centre would be no greater than the current value for the Sizewell site, that is 0.020 mSv per year.
- 6.9.6 The results of the terrestrial monitoring in 2014 (the most recent data set available at the time of writing) are presented in Table 4.8(a) in the RIFE report. The RIFE report summarises the analysis undertaken as follows:

“Gamma-ray spectrometry and analysis of tritium, carbon-14 and sulphur-35 in milk and crops generally showed very low concentrations of artificial radionuclides near the power stations in 2014. Carbon-14 concentrations were

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detected in locally produced milk, above background concentrations, and these decreased by small amounts, in comparison to those in 2013.”

- 6.9.7 The operator also undertakes environmental monitoring of radioactivity in the surrounding area on a routine basis in accordance with the requirements of the environmental permit and reports the results to the Environment Agency. This evidence also supports the position that there are very low concentrations of radioactivity near the power station.
- 6.9.8 The Environment Agency has undertaken an assessment of radiological impacts to non-human biota for protected (Natura 2000) sites. The results, reported in “Habitat Assessment for Radioactive Substance” (Ref. 6.61) concluded that for the sites around Sizewell the total dose rates were below the threshold rate below which the Environment Agency, Natural England and the Countryside Council for Wales agreed there would be no adverse effect to the integrity of a Natura 2000 site.
- 6.9.9 The evidence presented above shows that there are very low levels of radioactivity in the environment around the Sizewell site. Therefore it is not expected that elevated levels of radioactivity above the existing background levels would be found that could affect the proposed development areas or people living or working close to these areas.

b) Potential Environmental Impacts

i. Construction

- 6.9.10 Construction work inside the Sizewell B site perimeter would be strictly controlled in accordance with the Nuclear Site Licence and Ionising Radiations Regulations. It is not expected that there would be any elevated levels of radioactivity in the construction area inside the Sizewell B site perimeter. Notwithstanding this, health physics support would be available to inform any decisions regarding the safe excavation and management of waste should radioactive material be found.
- 6.9.11 Construction work outside the Sizewell B site perimeter, including the areas proposed for the laydown area, outage and operational car parking areas and training and visitor centres is unlikely to encounter any elevated levels of radioactivity. Further radiological analysis as part of the planned wider ground investigations are continuing. Should any elevated levels be found then an assessment on the radiological impacts to construction workers and members of the public would be undertaken.

ii. Operation

- 6.9.12 An assessment of operational impacts of facilities outside the Sizewell B site perimeter is not considered necessary because none of the facilities would contain or discharge radioactive waste.
- 6.9.13 The outage store inside the Sizewell B site perimeter is the only relocated facility that would contain radioactive material but it would not make any discharges of radioactive effluents. Any transfer of radioactive material to the outage store within the site would be strictly controlled and managed under existing, robust arrangements. Any radioactive material stored in the outage store would be subject to strict regulatory controls in accordance with the Nuclear Site Licence and

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Environmental Permit, including controls on dose rate of radioactive material allowed in the outage store. This means that doses to workers and members of the public from material contained in the store would need to be kept As Low As Reasonably Practicable (ALARP). The current outage store does contribute to the Sizewell B site's direct radiation but this contribution is likely to be further reduced when the outage store is relocated as it would move further into the middle of the site and further away from public access. Direct radiation from Sizewell B will remain low now and in the future.

- 6.9.14 Any disposal of solid radioactive waste from the Sizewell B site arising from the outage store will be managed under the conditions and limitations of the existing Environmental Permit regulated by the Environment Agency.

c) Proposed Assessment Methodology

- 6.9.15 The survey and radiological assessment work proposed to be undertaken comprises the items below:

- It is not expected that any elevated levels of radioactivity above existing established background levels would be found. However, if the outcome of the ground investigations indicates otherwise an assessment of radiological impacts arising from construction would be completed. The assessment will use the methodology developed by Public Health England (NRPB-W36) (Ref. 6.62).
- A chapter for the ES will be produced that will describe the baseline conditions and the methodology and results of any assessment should the ground investigations identify elevated concentrations are present and a radiological assessment is appropriate.

- 6.9.16 An assessment of operational impacts is not considered necessary because the changes inside the Sizewell B site perimeter would not make any additional contribution to the currently permitted discharges from the Sizewell B site that are regulated by the Environment Agency. Sizewell B has recently (2015) completed a regulatory review of permitted discharges. The Environment Agency concluded that:

- current permitted discharge limits for all radionuclides remain appropriate at the current time;
- NGL continues to demonstrate the application of Best Available Technique/Best Practicable Means to minimise discharges; and
- doses to the representative person from discharges remain below the regulator's thresholds for optimisation (Ref. 6.63).

- 6.9.17 An assessment of radiological impacts to non-human biota is not considered necessary because the results of the Environment Agency Habitat Assessment for Radioactive Substance report (described in **Section a**)), conclude that the Natura sites close to the proposed development are well below the screening assessment levels. Given the proposed development would not make any changes to the already permitted discharge levels it is not considered necessary to undertake a further non-human biota assessment.

7. TOPICS SCOPED OUT

7.1 Introduction

- 7.1.1 The aim of the scoping stage is to focus the EIA on those environmental topics that have the potential to experience significant effects as a result of the proposed development.
- 7.1.2 In undertaking scoping, the likelihood of significant effects arising within each environmental topic becomes clearer and in some cases it is possible to robustly conclude that no significant adverse effects are likely to arise. This section provides a summary of those topics which have been considered during the preparation of this EIA Scoping Report as not likely to give rise to significant environmental effects. Therefore, they are not intended to be considered in detail in the ES.

7.2 Air Quality

a) Baseline Conditions

- 7.2.1 Defra background mapping (Ref. 6.64) indicates that the air quality in the Site vicinity (within 1km) is well below the relevant air quality objectives at less than 75% of the air quality objective. SCDC has declared three AQMAs in its district due to elevated concentrations of ambient nitrogen dioxide (NO₂); the nearest of which is approximately 15km from the Site (Ref. 6.65).
- 7.2.2 Air quality monitoring has been undertaken in the area using continuous monitors for oxides of nitrogen (NO_x), nitric oxide (NO), NO₂ and particulates (PM₁₀), and also passive diffusion tubes for NO₂ and sulphur dioxide (SO₂). Overall this monitoring has shown generally good air quality throughout a wider provisional study area extending up to 10km from the Site.
- 7.2.3 The results of the background continuous monitoring support the publicly available data, demonstrating that pollutant concentrations are generally well below relevant air quality objectives in the study area.
- 7.2.4 The sensitivity of the local area to changes in air quality, and the likelihood of air quality effects from the proposed development affecting people's health within the study area are therefore considered to be low.

b) Potential Environmental Impacts

i. Construction

Traffic Emissions

- 7.2.5 The construction and demolition phase would generate combustion emissions from road traffic, and construction vehicles and plant working on-site. It is estimated that there would be a maximum of 70 HGVs (140 movements) per day at peak. The peak construction workforce is anticipated to be 175 people at the Site. Over the course of the construction and demolition phase, the average number of workforce personnel and HGV movements would be significantly lower than these numbers.

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- 7.2.6 The DMRB Guidance (DMRB, Ref. 6.66) indicates that further assessment of air quality effects from road vehicles is needed where proposals would result in an increase in Annual Average Daily Traffic (AADT) flows of more than 1,000 vehicles or 200 HGVs. The daily traffic to the Site, including construction worker transport, is not predicted to exceed the criteria outlined in DMRB Guidance requiring assessment of road traffic effects, even with conservative assumptions applied, since predicted levels are at 35% of the screening threshold. It is therefore proposed that the effects of combustion emissions from HGV traffic can be screened out from further assessment.

Dust

- 7.2.7 The Institute for Air Quality Management guidance (IAQM) (Ref. 6.67) indicates that potentially significant construction dust effects can occur on human receptors up to 350m from a dust generating activity such as site clearance and earthworks on ecological receptors up to 50m from such activities, depending on the level of control applied, the nature of the materials being moved and the types of activities undertaken. Secondary dust effects from 'trackout' (mud and debris from construction vehicles as they access public roads) can occur within 50-200m from a site entrance if not adequately controlled.
- 7.2.8 The construction and demolition phase has the potential to create airborne dust, from demolition of structures, earthworks and from construction activities, such as use of concrete. These emissions typically do not affect receptors beyond 350m from the working area. They are most pronounced within 20-30m of the source, as beyond this distance sufficient dispersion occurs to render the effect negligible, as indicated in the IAQM guidance. A large proportion of particulate matter generated by such activities is generally in the 'coarse' size range (greater than 20µm) and tends to rapidly settle to ground. The principal demolition and site clearance works would be within and close to the Sizewell B station site and are not anticipated to generate significant dust effects on identified receptors.
- 7.2.9 Given the distance from the principal demolition works to the closest human receptor (Rosary Cottages, approximately 500m) it is considered that the effects of construction and demolition dust would be limited. There is the potential for the earthworks and construction activities at Coronation Wood and Pillbox Field to generate airborne dust. However, given the anticipated timescale and nature of the works, this impact would be temporary and would be controlled through the implementation of industry-standard dust control and mitigation measures, which would be specified and applied as part of the construction environmental management arrangements. Use of such industry-standard mitigation is anticipated to control any such temporary impacts so as to be negligible.
- 7.2.10 The Sizewell Marshes SSSI is likely to be afforded some screening from existing vegetation between the SSSI and the proposed development activities. The nature of the habitat means that it is likely to have low sensitivity to deposited dust. Therefore it is considered that, with the implementation of the construction environmental management arrangements, the effects of earthworks, construction and demolition dust would be limited. On this basis, it is proposed that the impact is screened from further assessment. As with the potential impacts outlined above, the anticipated timescale and nature of the works mean this impact would be temporary and it would be controlled through the implementation of industry-standard dust control and

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mitigation measures which would be specified and applied as part of the construction environmental management arrangements.

- 7.2.11 Assuming implementation of industry-standard mitigation measures, such as employing water assisted dust sweepers, wheel washing and covering vehicles to minimise fugitive releases of materials, dust effects from re-suspension of trackout are also anticipated to have limited effects on the nearest residential receptors at Sizewell Gap, as well as on the Leiston-Aldeburgh SSSI and Sandlings SPA as a result of the distance of the receptors to the construction site entrances and the scale and duration of the proposed activities.

ii. Operation

- 7.2.12 As described in **Section 3**, the scheme primarily involves the relocation of existing facilities on a largely like-for-like basis. There are not anticipated to be any significant changes in the number of vehicles accessing the site during operation. Therefore, operational impacts on air quality are considered to be negligible and proposed to be scoped out of further assessment within the EIA.

c) Conclusions

- 7.2.13 The effects of construction and demolition activities and traffic emissions would be limited. This is due to the current good ambient air quality within the study area, the relatively small scale of the proposed development and the nature and relatively short duration of the works being proposed, the distances to identified sensitive receptors and the nature of the adjacent Sizewell Marshes SSSI (that is grazed and regularly inundated with water through high-water levels).. It is therefore proposed that air quality is scoped out of the EIA.

7.3 Socio-economics

- 7.3.1 The socio-economic effects of the proposed development have three potential elements:

- the potential effects on users of the existing visitor centre and potential users of the visitor centre in the future;
- the effect of short-term construction employment on the labour market; and
- the potential for cumulative effects on the labour market should the peak of construction overlap with a planned outage at Sizewell B.

a) Sizewell B Visitor Centre

- 7.3.2 The proposed development includes temporary relocation of the (current) visitor centre to the (current) technical training centre for an interim period. A new, permanent, building would then be provided at the north end of Coronation Wood (adjacent to the training centre) to house the visitor centre including exhibition spaces, viewing area, auditorium, classrooms and offices. Once construction is complete, the visitor centre's operations would re-locate to this new building.
- 7.3.3 The existing visitor centre is an important facility in the wider group of tourist attractions on the Suffolk coast. Its principle offer is to raise awareness of the power station and low-carbon energy in general, and it is anticipated that this activity would

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continue when moved to the temporary facility, and the permanent facility when provided. It is anticipated that operations related to members of the public and school groups would continue to be offered.

- 7.3.4 As such, the proposed development would not have any impact on the current operations of the visitor centre or its availability to users. Combined with the overall low sensitivity of the tourist economy, which has a significant number of visitors and is resilient to annual and seasonal variability, there would be no significant effects resulting from the proposed development. This element can be scoped out of the assessment.

b) Construction workforce

- 7.3.5 Construction of the proposed development would require a peak workforce of up to 175 workers for a short period. Over the course of the construction and demolition phase the average number of workers on-site would be significantly lower than this figure. The construction period is not likely to significantly overlap with planned outages at Sizewell B, and in any case would not likely draw on the same skill-set of workers.
- 7.3.6 The peak workforce at the Site would represent a small increase in short-term, temporary employment equivalent to around 0.7% of the existing pool of Suffolk residents working in the construction sector. This would only occur for a period of a few months and would therefore result in a very low magnitude impact.
- 7.3.7 The construction sector is also relatively insensitive to change. It is also resilient with short employment tenures, high rates of self-employment and a high turnover of workers, and a large labour pool based on average commuting distances (construction workers likely to travel significant distances (up to around 50 miles) to work at a site).
- 7.3.8 Based on the low sensitivity/value of the employment environment to short-term employment opportunities, the very low magnitude of the impact, and the unlikelihood of cumulative effects with planned outages at Sizewell B, a negligible effect is expected on labour demand in the study area. As such it can be scoped out.

c) Conclusions

- 7.3.9 Considering that no significant socio-economic effects are anticipated to arise from any phase of the proposed development, it is proposed that the socio-economic assessment is scoped out of the EIA.

7.4 Agriculture

- 7.4.1 Land take from outside the Sizewell power station complex for the proposed development would be minimal and limited to that at Pillbox Field for the proposed outage car park, and to the north of Sizewell B for use during construction for stockpiling.
- 7.4.2 The land to the north of Sizewell B for use during construction for stockpiling is predominantly made ground. The land at Pillbox Field is of low quality, does not fall within the best and most versatile grades (i.e. Grade 1 to Sub-grade 3a), and is not in agricultural use.

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- 7.4.3 No excavation is proposed at the land to the north of Sizewell B and the land at Pillbox Field is of low quality. Therefore no potential impacts have been identified in relation to agriculture and it is proposed that this topic is scoped out of the EIA.

7.5 Waste

- 7.5.1 Waste would be created as a result of the proposed development. During the construction and demolition phases, appropriate construction management arrangements following industry best practice would manage any waste produced on site.
- 7.5.2 The construction management arrangements would ensure that, as far as is reasonably practicable, construction waste is re-used, recycled or recovered and that, where possible, resource efficiency is increased. During operation, waste would be managed under existing site arrangements. It is not anticipated that this would have a significant environmental effect on the existing waste management capacity. It is therefore proposed that waste is scoped out of the EIA.
- 7.5.3 A description of the potential streams of construction and demolition waste, estimated volumes and waste management measures will be described within the proposed development chapter of the ES. This information will be provided to the appointed contractor(s) to inform their waste management arrangements.

8. PROPOSED STRUCTURE OF THE ES

8.1.1 It is anticipated that the ES will be structured as follows:

- **Non-Technical Summary (NTS):** this document will provide a summary of the key findings of the EIA. The NTS will be presented in non-technical language to assist the reader in understanding the site context, the proposed development, the design alternatives, the environmental matters arising, and proposed mitigation measures.
- **Volume I: Environmental Statement:** this will contain the full text of the EIA, structured as follows:
 1. Introduction
 2. Legislation and Policy Context
 3. Proposed Development
 4. Alternatives
 5. EIA Approach and Methodology
 6. Terrestrial Ecology
 7. Landscape and Visual
 8. Historic Environment
 9. Amenity and Recreation
 10. Transport
 11. Noise and Vibration
 12. Land Quality and Hydrogeology
 13. Surface Water and Flood Risk
 14. Radiological
 15. Cumulative Effects
- **Volume II: Technical Appendices:** This will provide supplementary details of the environmental studies conducted during the EIA including relevant data tables, figures and photographs.

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APPENDIX A – GLOSSARY OF TERMS AND LIST OF ABBREVIATIONS

Glossary of terms

Term	Definition
Appropriate Assessment (AA)	A process required by the Habitats Directive 92/43/EEC to avoid adverse effects of plans, programmes and projects on Natura 2000 sites and thereby maintain the integrity of the Natura 2000 network and its features.
Area of Outstanding Natural Beauty (AONB)	AONBs were formally designated under the National Parks and Access to the Countryside Act 1949 to protect areas of the countryside of high scenic quality that cannot be selected for National Park status due to their lack of opportunities for outdoor recreation (an essential objective of National Parks). Further information on AONBs can be found at www.aonb.org.uk
Cumulative effects	Effects that arise as a result of the proposed development in combination with other reasonably foreseeable large scale developments and/or projects in the vicinity of the site.
Decibel (dB)	A unit specifying the logarithm of the ratio between the value of a quantity and a reference value (usually used in the measurement of power and intensity). For sound pressure level the reference quantity is 20µPa, which is the threshold of normal hearing (0 dB). 140 dB is the threshold of pain.
Disturbance	A perturbation in the system (either biological, e.g. predation or physical, e.g. storms) which alters the nature of the biological community.
Effect	The consequence of an impact. For example, a change in the perception of a local landscape character.
Environment Agency	A Government Agency responsible for matters relating to contaminated land, waste management, surface water drainage and discharges, flood risk management and water quality.
Environmental Impact Assessment (EIA)	Generically, a process for predicting the effects of a proposed development on the environment that informs decision-makers in relation to planning permissions, consents, licences and other statutory approvals, as required by European Union Directive 2011/92/EU (which codified Directive 85/337/EEC) (the EIA Directive).
EIA Scoping Report	A scoping report is usually produced at an early stage in the EIA process and should contain sufficient information to support a developer's request to a regulator for a scoping opinion.
Environmental Statement (ES)	The document reporting the process and outcomes of the EIA.
Geomorphology	The scientific study of landforms and the processes that shape them through an understanding of landform history and dynamics (in particular their nature, origin, processes of development and material composition).
Groundwater	Water occurring below ground in natural formations (typically rocks, gravels and sands).
Habitats Directive	The Habitats Directive (more formally known as Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) is a European Union Directive adopted in 1992 as a response to the Berne Convention. It is one of the EU's two directives in relation to wildlife and nature conservation (the other being the Birds Directive). It aims to protect over 200 habitats and approximately 1,000 animal and plant species listed in the Directive's Annexes. Annex I covers

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Term	Definition
	habitats, Annex II covers species requiring designation of special areas of conservation, Annex III covers the criteria for selecting sites eligible for identification as sites of community importance and designation as special areas of conservation, Annex IV covers species in need of strict protection and Annex V covers species whose taking from the wild can be restricted by European law. These are species and habitats which are considered to be of European interest, following criteria given in the Directive. The Directive led to the setting up of a network of Special Areas of Conservation which, together with the existing Special Protection Areas, form a network of protected sites across the European Union called Natura 2000.
Habitat Regulations Assessment	An assessment to determine compliance of a plan or project with the Habitats Directive (94/43/EEC) and Conservation of Habitats and Species Regulations 2010 (as amended).
Historic England	A Government Agency which promotes conservation and understanding of the historic environment, advises Government on the selection of listed buildings and scheduled Ancient monuments for protection, and provides grant aid for the maintenance of historic buildings and monuments.
Impact	The change resulting from an action. For example, a new bypass development and the local landscape as the sensitive environmental resource. Here an impact (the change arising from the development's progression) could be the permanent loss of mature trees and hedgerows.
Inter-relationship	Occurs between individual environmental effects of the proposed development and has the potential to combine together with one another at receptors and lead to significant effects. For example, the combined effect of noise, vibration and dust on a single receptor.
Mitigation	Measures recommended through the EIA process and applied through the regulatory approvals process to avoid, reduce or, where appropriate, to offset significant adverse effects on the environment
Natural England	A Government Agency that promotes the conservation of England's wildlife and natural features and is responsible for designating National Nature Reserves, identifying Sites of Special Scientific Interest and for advising a wide range of bodies and individuals including the Government on matters affecting nature conservation.
Proposed Development	Comprises the construction of replacement facilities at locations within the existing Sizewell power station complex and to the south of the complex, followed by the demolition and removal of existing facilities.
Public Rights of Way (PRoW)	These are designated 'highways' under the Countryside and Rights of Way (CRoW) Act 2000, which the public can use at any time.
Ramsar Site	The Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat (1971) imposes a requirement on the UK Government to promote the wise use of wetlands and to protect wetlands of international importance. Further information can be found on the RAMSAR convention on wetlands website: www.ramsar.org
Resources	Defined as bio-physical features or items of 'environmental capital'. For example, species and their habitats, aquifers, access routes and community facilities.
Scheduled Ancient Monument	A feature of national, historical or archaeological importance, either above or below the ground, which is included in the schedule of monuments as identified by the Secretary of State. Not all nationally important archaeological remains are scheduled and sites of lesser importance may still merit protection.
Secondary Aquifer	Layers of rock or deposits providing lower levels of groundwater storage than a Principal Aquifer.
Site	The areas from which the Sizewell B facilities would be removed together with the

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Term	Definition
	land that would be used to construct the new facilities.
Site of Special Scientific Interest (SSSI)	An area designated as being of special interest by reason of any of its flora, fauna or geological or physiographical features. SSSIs are designated by Natural England under the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way Act 2000.
Sizewell power station complex	The existing Sizewell A and B power stations considered together.
Source Protection Zones (SPZ)	Defined by the Environment Agency, these zones show the risk of contamination from any activities that might cause pollution in the area.
Special Area of Conservation (SAC)	A site designated via the European Directive on the Conservation of Natural Habitats of Wild Fauna and Flora (92/43/EEC) (i.e. the Habitats Directive) to protect rare and endangered habitats and species at a European level. Together with SPAs they form a network of European sites known as Natura 2000.
Special Protection Area (SPA)	Designated under Article 4 of the European Directive on the Conservation of Wild Birds (2009/147/EC) (i.e. the Birds Directive) to protect the habitats of threatened and migratory birds.
Suffolk Heritage Coast	Areas of coast that are managed to conserve their natural beauty and, where appropriate, to improve accessibility for visitors.
Surface water	Terrestrial water bodies that are found above ground level, such as lakes, rivers and ditches, and including fresh and inland brackish water.
Water Framework Directive (WFD)	European Community Directive (2000/60/EC) on integrated river basin management. The WFD sets out environmental objectives for water status based on: ecological and chemical parameters; common monitoring and assessment strategies; arrangements for river basin administration and planning; and a programme of measures in order to meet the objectives. For further detail consult the European Commission website: http://europa.eu.int

List of abbreviations

Abbreviation	Term
AA	Appropriate Assessment
ACM	Asbestos Containing Material
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
AQMA	Air Quality Management Area
BAP	Biodiversity Action Plan
CIEEM	Chartered Institute of Ecology and Environmental Management
CNS	Civil Nuclear Security
CSM	Conceptual Site Model
CWS	County Wildlife Site
dB	decibel
DBA	Desk Based Assessment
DCLG	Department for Communities and Local Government
DECC	Department for Energy and Climate Change
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EclA	Ecological Impact Assessment
EDF	Electricité de France
EIA	Environmental Impact Assessment
ES	Environmental Statement
FRA	Flood Risk Assessment
GI	Ground Investigation
ha	hectare
HER	Historic Environment Record
HGV	Heavy Goods Vehicle
HLC	Historic Land Characterisation
HVAC	Heating, ventilation and air conditioning
IEF	Important Ecological Features
IMS	Integrated Management System
km	kilometre
LOAEL	Lowest observable adverse effect level
LSE	Likely Significant Effect
LVIA	Landscape and Visual Impact Assessment
m	metre
mSv	millisieverts
NDA	Nuclear Decommissioning Authority

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Abbreviation	Term
NGL	EDF Energy Nuclear Generation Limited
NO	Nitric Oxide
NO ₂	Nitrogen Dioxide
NO _x	Oxides of Nitrogen
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
NTS	Non-technical Summary
ONR	Office for Nuclear Regulation
OS	Ordnance Survey
PCL	Potential Contamination Linkage
PM ₁₀	Particulate Matter
PRoW	Public Right of Way
RCP	Reactor Coolant Pump
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SCC	Suffolk County Council
SCCAS	Suffolk County Council Archaeological Service
SCDC	Suffolk Coastal District Council
SO ₂	Sulphur Dioxide
SOAEL	Significant observable adverse effect level
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Site of Special Scientific Interest
TA	Transport Assessment
TS	Transport Statement
UK	United Kingdom
UXO	Unexploded ordnance
WFD	Water Framework Directive
WSI	Written Scheme of Investigation
WWII	World War Two
ZOI	Zone of Influence
ZTV	Zone of Theoretical Visibility

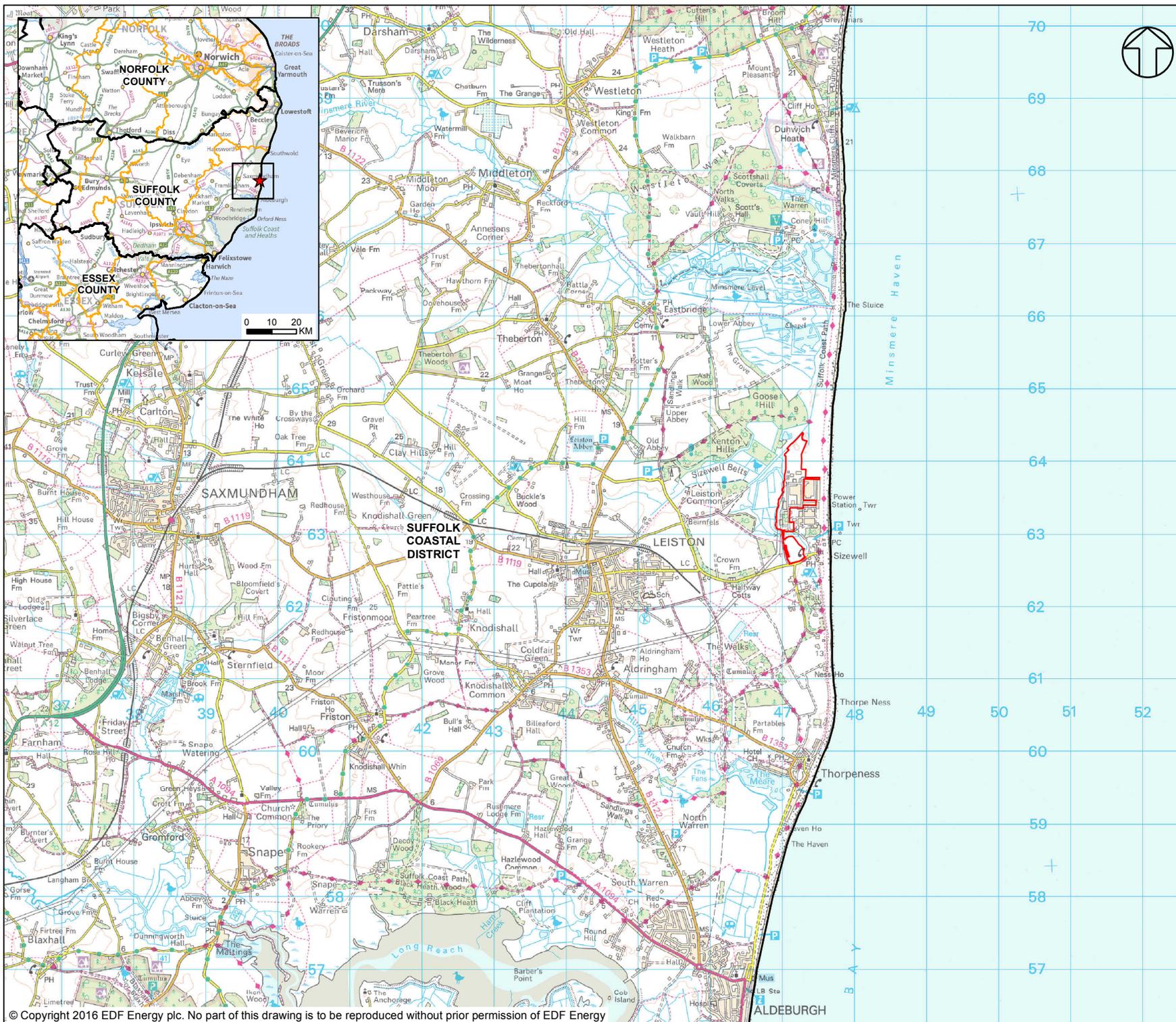
APPENDIX B – BADGER INFORMATION

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EPFM DOCUMENT REFERENCE NUMBER (WHERE APPLICABLE)
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NOTES

KEY

- SIZEWELL B RELOCATED FACILITIES
- INDICATIVE DEVELOPMENT BOUNDARY FOR PURPOSES OF EIA SCOPING
- COUNTY BOUNDARY
- DISTRICT/UNITARY AUTHORITY BOUNDARIES

15	15/02/16	JW	JK	FIRST DRAFT	2A
REVISION	DATE	DRAWN	CHECKED	REASONS FOR REVISION/COMMENTS	APPROVED



NUCLEAR GENERATION LIMITED

DOCUMENT:
**SIZEWELL B RELOCATED FACILITIES
EIA SCOPING REPORT
SECTION 1**

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DRAWING NO:
FIGURE 1.1

REVISION:
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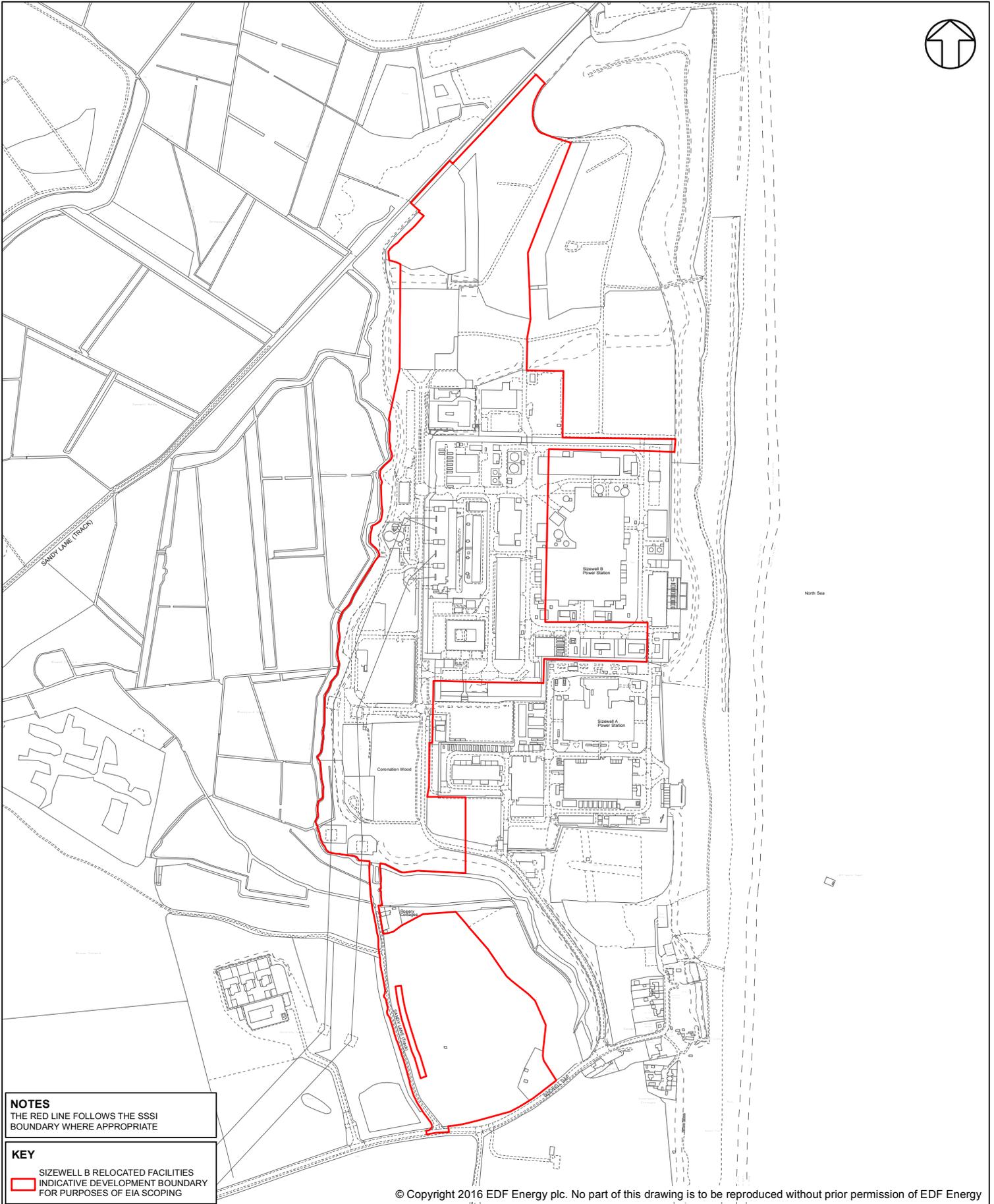
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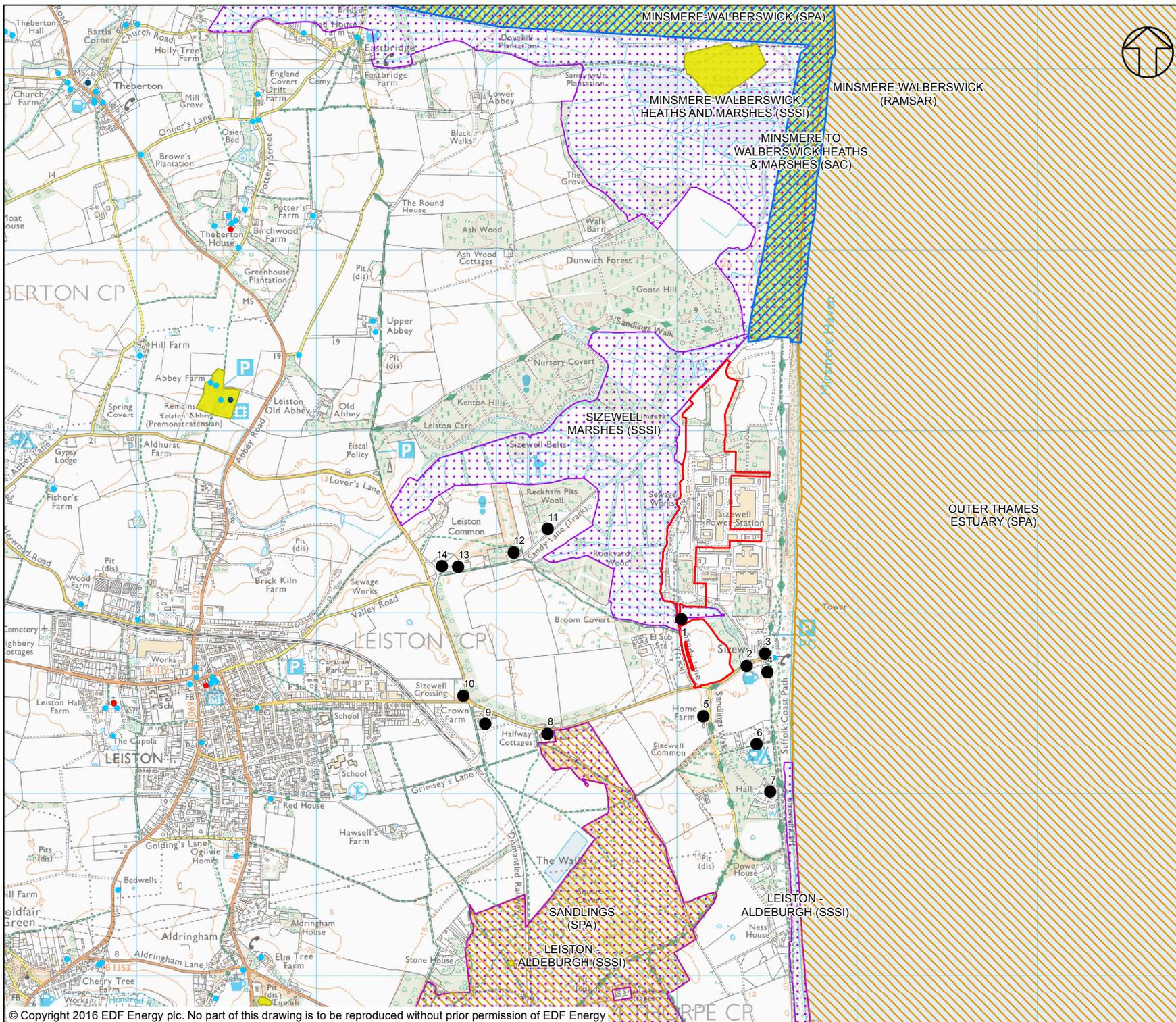


NOTES
 THE RED LINE FOLLOWS THE SSSI
 BOUNDARY WHERE APPROPRIATE

KEY
 **SIZEWELL B RELOCATED FACILITIES**
 **INDICATIVE DEVELOPMENT BOUNDARY FOR PURPOSES OF EIA SCOPING**

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DOCUMENT: SIZEWELL B RELOCATED FACILITIES EIA SCOPING REPORT SECTION 1		DRAWING TITLE: INDICATIVE DEVELOPMENT BOUNDARY FOR PUPOSES OF EIA SCOPING		 EDF ENERGY NUCLEAR GENERATION LIMITED													
DRAWING NO: FIGURE 1.2		DRAWING SECURITY CLASSIFICATION: <input type="checkbox"/> PROTECTIVE MARKING REQUIRED <input checked="" type="checkbox"/> NOT PROTECTIVELY MARKED															
DATE: OCT 2016	DRAWN: J.W.	REVISION: 1.0	SCALE: 1:6,000 @A3	SCALE BAR 0 50 100 150 200 250 300 M													
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NOTES

KEY

- SIZEWELL B RELOCATED FACILITIES
 - INDICATIVE DEVELOPMENT BOUNDARY FOR PURPOSES OF EIA SCOPING
- LISTED BUILDINGS**
- GRADE I
 - GRADE II*
 - GRADE II
 - SCHEDULED MONUMENTS
 - SPECIAL AREA OF CONSERVATION (SAC)
 - SPECIAL PROTECTION AREA (SPA)
 - RAMSAR
 - SITE OF SPECIAL SCIENTIFIC INTEREST (SSSI)
 - CLOSEST RESIDENTIAL RECEPTORS
1. ROSARY COTTAGES (NGL OWNED)
 2. VULCAN ARMS PUBLIC HOUSE
 3. SIZEWELL VILLAGE
 4. COASTGUARD COTTAGES
 5. HOME FARM
 6. BEACH VIEW HOLIDAY PARK
 7. SIZEWELL HALL
 8. HALFWAY COTTAGES
 9. CROWN FARM COTTAGES
 10. CROWN LODGE
 11. KEEPERS COTTAGES
 12. RECKHAM LODGE
 13. THE WILDERNESS
 14. COMMON FARM

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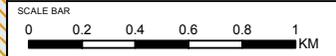
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DOCUMENT:
SIZEWELL B RELOCATED FACILITIES
EIA SCOPING REPORT
SECTION 3

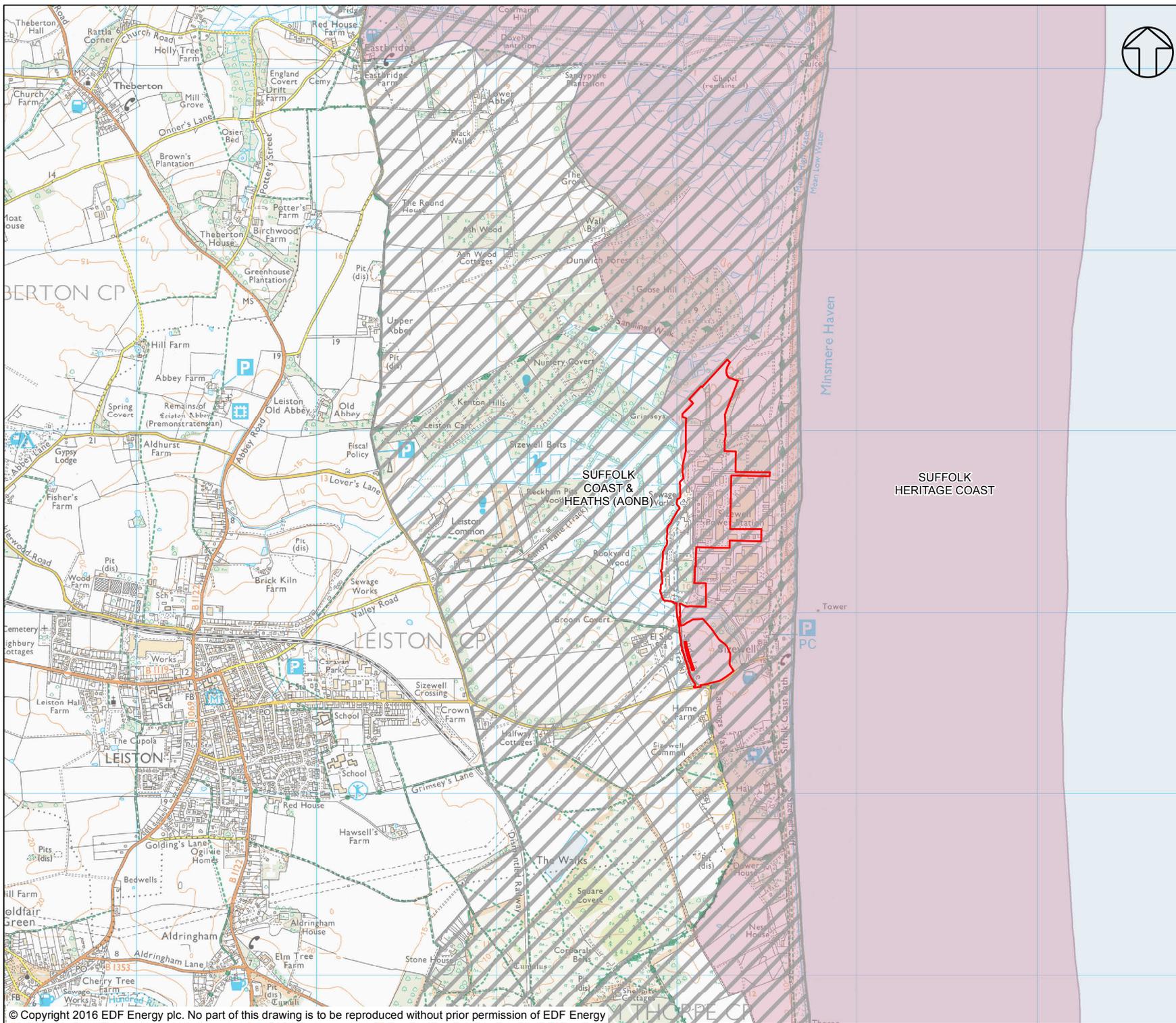
DRAWING TITLE:
KEY ENVIRONMENTAL RECEPTORS AND
DESIGNATED AREAS (1 OF 2)

DRAWING NO: **FIGURE 3.1** REVISION: **1.0**

DATE: **OCT 2016** DRAWN: **J.W.** SCALE: **1:20,000 @A3**



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NOTES

KEY

-  **SIZEWELL B RELOCATED FACILITIES**
-  **INDICATIVE DEVELOPMENT BOUNDARY FOR PURPOSES OF EIA SCOPING**
-  **DESIGNATED AREA OF OUTSTANDING NATURAL BEAUTY (AONB)**
-  **HERITAGE COAST**

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REVISION	DATE	DRAWN	CHECKED	REASONS FOR REVISION/COMMENTS	APPROVED



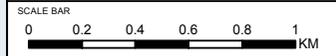
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DOCUMENT:
**SIZEWELL B RELOCATED FACILITIES
EIA SCOPING REPORT
SECTION 3**

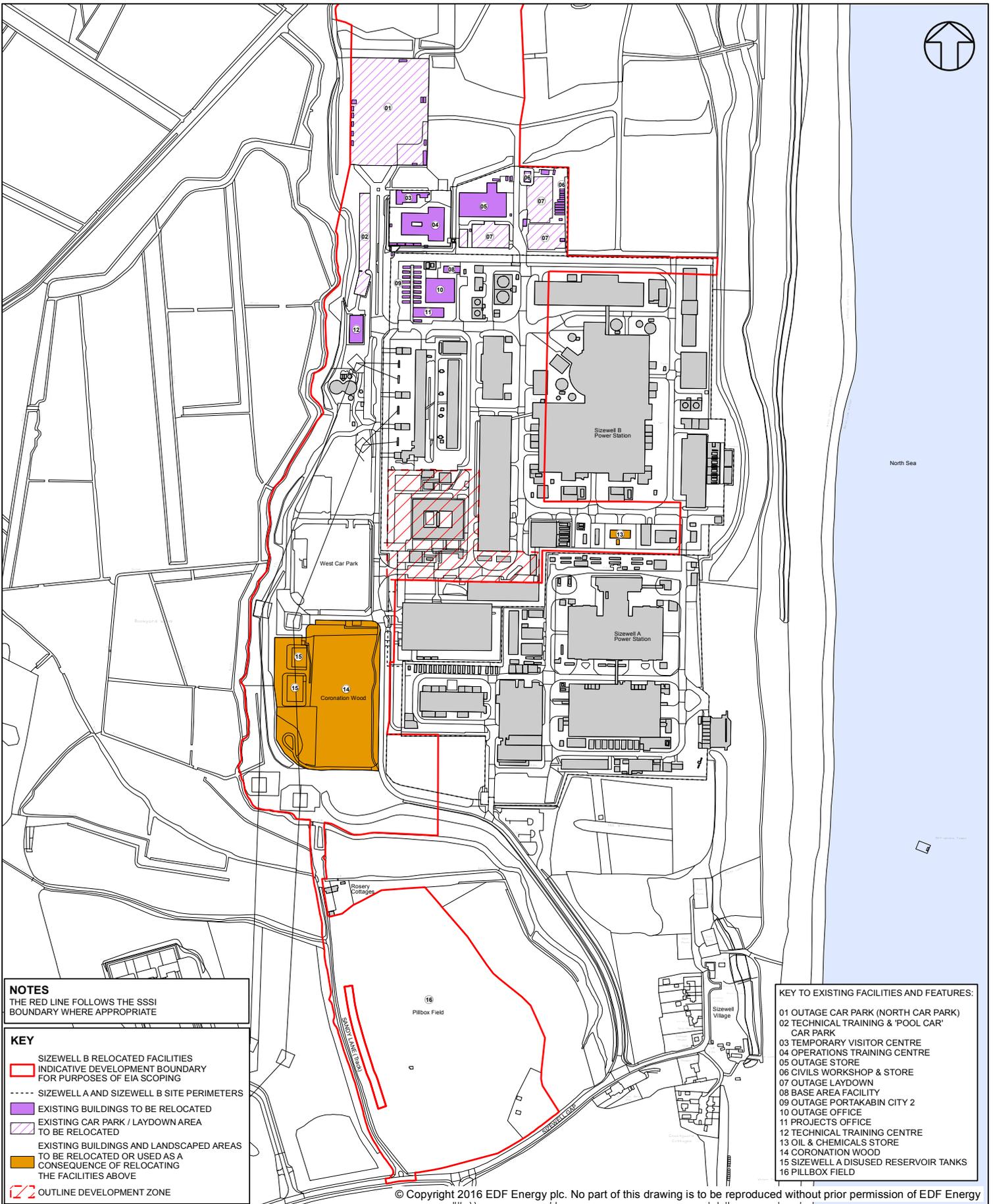
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**KEY ENVIRONMENTAL RECEPTORS AND
DESIGNATED AREAS (2 OF 2)**

DRAWING NO: **FIGURE 3.2** REVISION: **1.0**

DATE: **OCT 2016** DRAWN: **J.W.** SCALE: **1:20,000 @A3**



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NOTES
THE RED LINE FOLLOWS THE SSSI BOUNDARY WHERE APPROPRIATE

- KEY**
- SIZEWELL B RELOCATED FACILITIES INDICATIVE DEVELOPMENT BOUNDARY FOR PURPOSES OF EIA SCOPING
 - SIZEWELL A AND SIZEWELL B SITE PERIMETERS
 - EXISTING BUILDINGS TO BE RELOCATED
 - EXISTING CAR PARK / LAYDOWN AREA TO BE RELOCATED
 - EXISTING BUILDINGS AND LANDSCAPED AREAS TO BE RELOCATED OR USED AS A CONSEQUENCE OF RELOCATING THE FACILITIES ABOVE
 - OUTLINE DEVELOPMENT ZONE

- KEY TO EXISTING FACILITIES AND FEATURES:**
- 01 OUTAGE CAR PARK (NORTH CAR PARK)
 - 02 TECHNICAL TRAINING & 'POOL CAR' CAR PARK
 - 03 TEMPORARY VISITOR CENTRE
 - 04 OPERATIONS TRAINING CENTRE
 - 05 OUTAGE STORE
 - 06 CIVILS WORKSHOP & STORE
 - 07 OUTAGE LAYDOWN
 - 08 BASE AREA FACILITY
 - 09 OUTAGE PORTAKABIN CITY 2
 - 10 OUTAGE OFFICE
 - 11 PROJECTS OFFICE
 - 12 TECHNICAL TRAINING CENTRE
 - 13 OIL & CHEMICALS STORE
 - 14 CORONATION WOOD
 - 15 SIZEWELL A DISUSED RESERVOIR TANKS
 - 16 PILLBOX FIELD

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DOCUMENT:
**SIZEWELL B RELOCATED FACILITIES
EIA SCOPING REPORT
SECTION 3**

DRAWING NO:
FIGURE 3.3

DATE:
OCT 2016

REVISION:
1.0

DRAWN:
C.Q.

SCALE:
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DRAWING TITLE:
EXISTING SITE LAYOUT PLAN

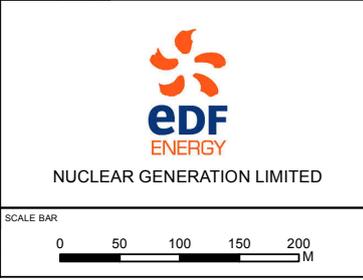
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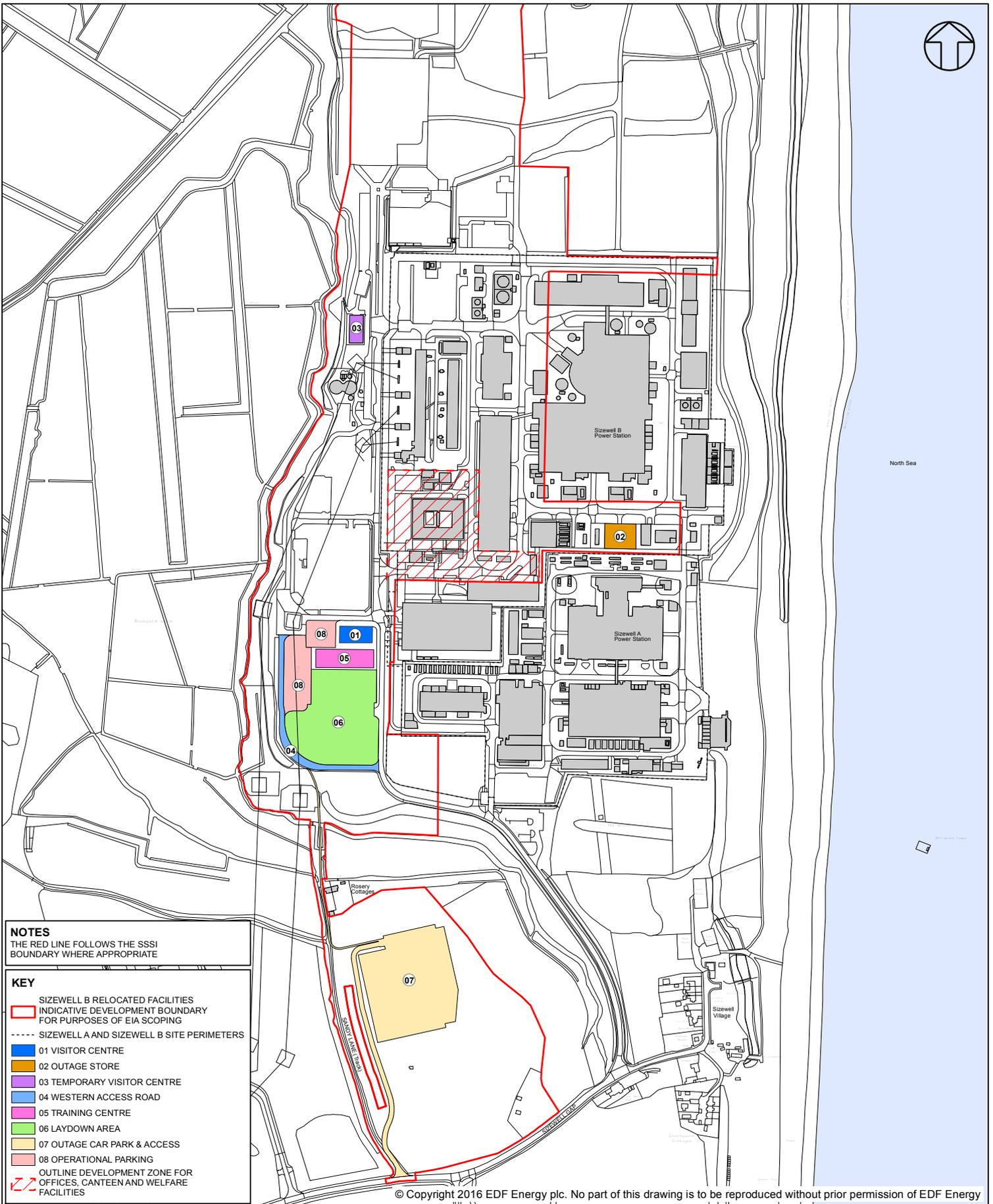
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 THE RED LINE FOLLOWS THE SSSI BOUNDARY WHERE APPROPRIATE

- KEY**
- SIZEWELL B RELOCATED FACILITIES
 - INDICATIVE DEVELOPMENT BOUNDARY FOR PURPOSES OF EIA SCOPING
 - SIZEWELL A AND SIZEWELL B SITE PERIMETERS
 - 01 VISITOR CENTRE
 - 02 OUTAGE STORE
 - 03 TEMPORARY VISITOR CENTRE
 - 04 WESTERN ACCESS ROAD
 - 05 TRAINING CENTRE
 - 06 LAYDOWN AREA
 - 07 OUTAGE CAR PARK & ACCESS
 - 08 OPERATIONAL PARKING
 - OUTLINE DEVELOPMENT ZONE FOR OFFICES, CANTEEN AND WELFARE FACILITIES

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DOCUMENT:
**SIZEWELL B RELOCATED FACILITIES
 EIA SCOPING REPORT
 SECTION 3**

DRAWING NO:
FIGURE 3.4

DATE:
OCT 2016

REVISION:
1.0

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C.Q.

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DRAWING TITLE:
PROPOSED SITE LAYOUT PLAN

DRAWING SECURITY CLASSIFICATION:
 PROTECTIVE MARKING REQUIRED
 NOT PROTECTIVELY MARKED

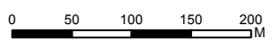
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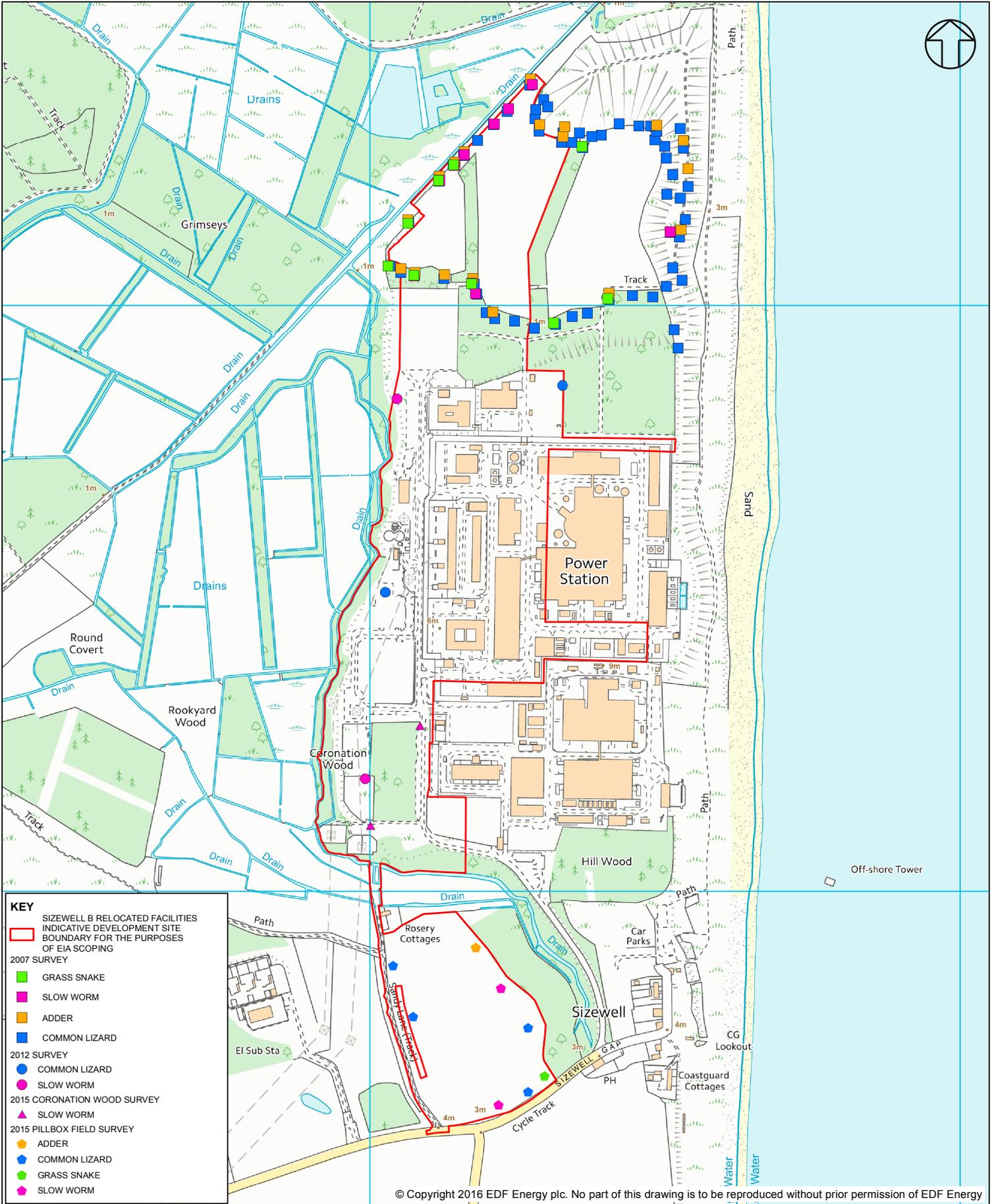
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KEY

SIZEWELL B RELOCATED FACILITIES INDICATIVE DEVELOPMENT SITE BOUNDARY FOR THE PURPOSES OF EIA SCOPING

2007 SURVEY

- GRASS SNAKE
- SLOW WORM
- ADDER
- COMMON LIZARD

2012 SURVEY

- COMMON LIZARD
- SLOW WORM

2015 CORONATION WOOD SURVEY

- SLOW WORM

2015 PILLBOX FIELD SURVEY

- ADDER
- COMMON LIZARD
- GRASS SNAKE
- SLOW WORM

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DOCUMENT: SIZEWELL B RELOCATED FACILITIES EIA SCOPING REPORT SECTION 6	
DRAWING NO: FIGURE 6.1	REVISION: 1.0
DATE: OCT 2016	DRAWN: R.M.
	SCALE: 1:6,000 @A3

DRAWING TITLE: REPTILE SURVEY RESULTS	
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KEY

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- INDICATIVE DEVELOPMENT SITE BOUNDARY FOR PURPOSES OF EIA SCOPING
- 2012
- 2014
- SURVEY AREA

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DRAWING NO: FIGURE 6.2	REVISION: 1.0	DRAWING SECURITY CLASSIFICATION: <input type="checkbox"/> PROTECTIVE MARKING REQUIRED <input checked="" type="checkbox"/> NOT PROTECTIVELY MARKED
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DRAWING TITLE: TREES WITH BAT ROOST POTENTIAL	
EPM DOCUMENT REFERENCE NUMBER (WHERE APPLICABLE) NOT APPLICABLE	
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<small>APPROVED</small>	<small>APPROVED</small>

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VOLUME II:
TECHNICAL APPENDICES

5.2 EIA Scoping Opinion

Suffolk Coastal District Council

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Please ask for: Lisa Chandler (Mrs)
Direct Dial: (01394) 444538
E-mail address: lisa.chandler@eastssuffolk.gov.uk
Our Ref: DC/16/4691/EIA
Your Ref:

7 December 2016

Dear Mr Cofield,

Thank you for the submission of an EIA Scoping Report in relation to Sizewell B relocated facilities. It is noted that the development as proposed would fall within Schedule 2 of the EIA regulations and as such *may not* require an environmental statement. However, as acknowledged in previous discussions, EDF Energy NGL Ltd has determined to conduct an EIA and provide an Environmental Statement in support of the planning application. This approach is considered acceptable and appropriate in this instance. Given that an ES may not be essential to support a planning application, this Authority is mindful of this in issuing this Scoping Opinion. Consultations have been sought statutory and non-statutory consultees during this process. The majority of their responses are incorporated in this response. As confirmed via email, this letter has been delayed due to an outstanding response from SCC which has now been incorporated. I apologise for the delay.

The relationship between the Sizewell B relocated facilities and the Sizewell C project are noted. The potential for the vacated land north of Sizewell B to be landscaped in the event that a Sizewell C project does not proceed is noted and will be expected to be included in the application for planning permission.

The requirement for related assessments paras 2.4.1 – 2.4.12 is noted as are the other permits and consents required (paras 2.5.1 – 2.5.5).

Natural England: The scoping request is for a proposal that does not appear to affect any nationally designated geological or ecological sites (Ramsar, SPA, SAC, SSSI, NNR) or landscapes (AONB's, Heritage Coasts, National Trails), or have significant impacts on the protection of soils. It is not a priority for NE to advise on the detail of this EIA but attention is drawn to key points of advice in Annex A (attached).

Historic England: We acknowledge that the development area has already been studied in detail and has been subject to a number of assessments; this includes amongst others, a desk-based assessment, a peat study, geophysical survey and an assessment of WWII military remains. We therefore agree that the report has considered designated and non-designated assets and that the assessment methodologies presented are suitable. We also agree that the mitigation as presented in chapter's 6.3.27- 6.3.36 (pp 44-45) for non-designated archaeology matters is appropriate.

We are increasingly aware of the potential importance of the existing buildings that relate to development of Britain's nuclear industry, and that these buildings may have an intrinsic interest beyond their current life. Assets that demonstrate or illustrate important developments of the nuclear industry would be considered as non-designated heritage assets. This has been discussed with the applicant at the pre-application stage and the report acknowledges this in paragraph 6.3.18. Separate mitigation for the demolished buildings is considered under 6.3.31, which considers a level 2 recording of the buildings that are to be demolished.

Although a level 2 record would be appropriate for the majority of the buildings affected by this development, ideally we would like to see an approach that would see the adoption of a site wide heritage strategy. A heritage strategy would ensure records are made during decommissioning and historically significant documents and artefacts are identified, and recorded. This may include for example the creation of building closure 'packs' for



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each structure to be demolished or remediated. This may already be part of the process that is adopted here, as it has been at other similar sites in the UK, and we recognise that although the results of this work may not be available to view for security reasons, that these documents may have a historic interest and that they merit long term curation.

We therefore agree that a level 2 record would be appropriate for buildings 05- Outage store, 06- Civils workshop and store, 07- Outage laydown, 08- Base area facility, 09- Outage Portakabin city 2, 10- Outage office, 11- Projects office, 13- Oil & Chemical store and 15- Sizewell A reservoir tanks. However the 03 Visitor Centre, was purpose-built and these buildings were a distinctive feature of the industry until 2011 therefore in addition to level 2 any original plans, contemporary photographs, publicity material would also be worthy of retention. Likewise, 04- Operations Training Centre and 12- Technical training centre may have contained simulators to train the personnel in control room operation and other functions, therefore in addition to the level 2 record it would be worth securing archive material, and inert training aids and related artefacts.

An Environmental Statement will need to provide sufficient information within to understand the impacts of the development upon the historic environment. The EIA should explore the ideas of benefit, harm and loss (as described in the NPPF) to set out 'what matters and why' in terms of the heritage assets' significance and setting, together with the effects of the development upon them.

Suffolk Wildlife Trust: We note the proposed scope of the ecological impact assessment (EcIA). We are broadly happy with the scope of the ecological impact assessment but it must be ensured that it is based on up to date survey information. Such survey information should not be more than 2 survey seasons old. One concern is the loss of semi-natural habitat as part of the proposals, the mitigation hierarchy must be applied to all proposals and if impacts cannot be avoided or mitigated, they must be fully justified and compensated.

Environment Agency: Topic areas that we would expect to see have been included. There are related assessments which will be needed including a Flood Risk Assessment and Water Framework Directive assessment. The EA are content with the topic chapters to be ruled out. However, with regard to waste, the application will still need to include sufficient information on the current approach to waste management and reduction on the Sizewell B site, if this information can be provided elsewhere in the EIA document then this would suffice. Please see the attached for specific comments on the other documents required and the topics scoped in to the EIA (attached).

RSPB: Confirm that we have no comment at this stage but would like to be consulted on the full planning application submission as a neighbour.

SCC Archaeology: We are pleased to see that Historic Environment has been scoped in as a key impact. In general we are happy with the contents of the Historic Environment chapter as in the main; it does accurately identify the known heritage assets within the proposal area which will be impacted upon by the proposed works, as well as the potential for encountering previously unknown remains. In addition, the proposed assessment methodology is generally sound.

Points to note:

- Dependent upon the works proposed to the north of Sizewell B, further archaeological test pitting or assessment may be required. If additional borehole data is available for this part of the site, we would be pleased to review the contents as this may help to inform the suggested approach in this area;
- Generally in agreement regarding the proposed assessment methodology for Coronation Wood. Before any fieldwork commences, historic mapping, aerial photography and LIDAR data should all be assessed for this area. A walkover assessment should be carried out at the earliest opportunity in case earthwork remains are identified which are worthy of leaving in situ and therefore should be avoided / designed around during the proposed works. Care will need to be taken around felling work to avoid disturbance to any earthworks which may survive and also any below ground disturbance through rutting. Provision should also be made for trial trenched archaeological evaluation in this area following the walkover and other surveys;
- Support the mitigation approach within Pillbox Field and the recording of buildings to be demolished;
- Happy to produce a brief which outlines the archaeological assessments required for the different elements of this proposal, in order to inform the development of WSI's for this work. We would ask to have the opportunity to comment on all WSI's before they are approved.

The walkover survey in Coronation Wood should be carried out at the earliest opportunity. However we would have no objection to all other works being undertaken as a condition of any granted consents for this proposal.

When the necessary archaeological assessments have been completed we will be able to comment on the specific mitigation requirements for this scheme.

SCDC Environmental Health: Factors of particular interest are the assessment and mitigation of the following elements: noise and vibration, air quality assessment (including dust), waste management (including potential contaminants and unexploded ordnance). We are satisfied with the content of the scoping report but wish to specifically mention the following items to ensure they are included within the ES:

1. Hours of operation for all constructional activities and any traffic movements to and from the site shall be limited to 0700 – 1900 hours Monday – Saturdays and none on Sundays or Bank Holidays. Except:-
 - Where continuous periods of operation are required such as concrete pouring; and
 - For the delivery of abnormal loads to the site which may cause congestion on the local road network. Prior agreement shall be sought from the Local Planning Authority for all operations, which are to be undertaken outside the above times.
2. Contractors shall be required to demonstrate that:-
 - Good practice procedures to minimise noise are instigated as set out in Part 1 of BS5288:2009 + A1:2014; and
 - Best Practicable Means (BPM) as defined in Section 72 of the Control of Pollution Act 1974 (COPA) have been applied to all works.
3. All residents who are likely to be affected by constructional noise that exceeds 64dbA expressed as a 1 hour LAeq value shall be notified at least 24 hours in advance of the works and given an estimate of how long the elevated noise levels will continue.
4. Details of all operational plant at re-sited facilities which may give rise to noise beyond the site boundary shall be presented together with a scheme to mitigate the resultant noise to achieve the existing background noise levels at any residential property.
5. Where constructional operations are likely to produce dust which will be emitted beyond the site boundary, a detailed scheme of dust suppression shall be agreed with the Local Planning Authority prior to the commencement of such works.
6. Details of the location, height, design, any activity sensors and illuminance of all floodlighting used during construction shall be agreed with the Local Planning Authority prior to the commencement of the development. Measures to limit obtrusive glare to nearby residential property and to minimise sky glow shall be incorporated in the design of the floodlighting.
7. Where any contaminated material or unexploded ordnance is identified and is required to be moved from site, or alternatively where any contaminants are identified and are to be encapsulated on site, full details of the process shall be submitted in a remediation method statement to the Local planning Authority. Only an approved scheme shall be implemented in its entirety.
8. Any contaminants discovered during the construction phase of the development shall be remediated in accordance with the remediation plan. The Environmental Protection Team at Suffolk Coastal District Council shall be notified in writing at least 7 days prior to any removal or encapsulation of any contaminants.
9. The Local Planning Authority shall require written validation that:-
 - (i) All contaminated material removed from the site is removed by an appropriate licensed contractor to a facility approved by the Environment Agency. Details of contractors and movement permits should be retained for this purpose;
 - (ii) All imported material is suitable for its intended use and certified to CLEA standard, as specified in the European Community Directive 80/778). Details of certified materials should be retained for this purpose; and
 - (iii) Remediation measures have been undertaken to render the site suitable for its specified use.
10. A decommissioning plan for these re-located facilities including:
 - The types of work that will be required;
 - The structures to be removed;
 - The disposal of waste material; and
 - The suitability of the site for restoration or future use.

(It is noted that this will be included under the decommissioning plan for Sizewell B under the Nuclear Reactors (Environmental Impact Assessment for Decommissioning) Regulations 1999 (as amended) at the end point of generation.

SCC Landscape: The proposed site is located entirely within the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) designation as well as partially within the Suffolk heritage Coast. The planned development would have potential effects on the landscape as a resource and on views and visual amenities. The main effects arising from the proposed development are likely to result from the loss of landscape features and

elements and the introduction of new features either temporarily or in the long-term. The proposed methodology and baseline set out in section 6.2 appear to be acceptable, subject to agreement of the viewpoint and photomontage locations with SCDC's Landscape and Arboricultural Manager.

SCC Highways: The county council welcomes the fact that transport has been included as one of the headings for inclusion within the ES.

Paragraph 3.6.3 to 3.5.6 discusses the process of construction and demolitions associated with the proposed development. Regarding related activities, the County Council sees the need to highlight that construction activities out of normal working are likely to create HGV and other vehicle movements which may have an impact on communities adjacent to the B1122 and the A12. The EIA should give further evidence regarding the likelihood and scale of such activities.

Attention is draw to the passage 5.2.1 about the Schedule 4 of the EIA Regulations and its implications regarding the wider impact of construction traffic on communities adjacent to the likely routes.

Paragraph 6.2.21 lists a range of construction activities which could potentially cause landscape and visual effects:

- *movement of machinery and traffic to and around the construction site;*
- *felling of trees and removal of vegetation as part of site clearance and preparation;*
- *localised changes to topography due to excavation and the temporary stockpiling*
- *and storage of excavated materials;*
- *construction working areas, laydown areas, workshops, storage and other temporary structures associated with construction;*
- *construction roads, fencing, lighting and security features;*
- *construction of new buildings and facilities and associated access routes and car parking, including in Pillbox Field; and*
- *demolition of existing facilities/buildings and removal of materials arising.*

The list is set against the scope of potential significant effects within an identified study area of 1km, measured around the site boundary (para. 6.4.1). Reviewing this approach Suffolk County Council reflects that the effects of construction traffic on the use of the wider area of Suffolk Coastal do not appear to be scoped into the EIA. The area to the east of the A12 attracts a significant number of people (receptors) for leisure and tourism. A significant proportion uses the local road and rights of way network adjacent to the B1122 and A12. Increased traffic may create a deterrent to use of walking of cycling between Leiston and the Sizewell B.

Paragraph 6.5.5 considers Heavy Good Vehicles (HGV) movement on site and the surrounding area generated during construction and demolition phase. Supporting details will need to be provided to quantify the maximum number of HGV movements, workforce numbers and the duration of the works (around 54 months) and how this relates to the phasing of Sizewell C. The traffic flows available suggest that there will be a significant impact on the B1122 and A12 in terms of HGV movements. Data from Sizewell C consultation document (November 2016) is set out below. The county council expects a consistent approach to be taken; the forecast of 170 HGVs in each direction with Sizewell B relocation set out below differs from the 140 quoted in para. 6.5.5 of the Scoping Report.

	Current average daily 24 hour weekday flow	Estimated average daily 24 hour weekday flow (without Sizewell B relocation)	Estimated average daily 24 hour weekday flow (with Sizewell B relocation) ^{1&2}	Current average daily 24 hour weekday HGV flow	Estimated peak daily 24 hour weekday HGV flow (with Sizewell B relocation) ¹	(% increase of HGV's)
B1122 Theberton	4,950	5,550	6,240	230	570	148
B1122 Yoxford	3,350	3,750	4,440	170	510	200
A12 Yoxford	15,050	16,500	17,190	800	1,140	43

A12 south of Wickham Market Park	24,400	25,550	26,240	1,090	1,430	31
Notes	¹	Forecast 170 HGV movements in each direction				
	²	Estimated 175 additional vehicle movements in each direction				

The Scoping Report acknowledges staff travel movements during construction in para. 6.5.6. However, the document does not place significant weight on provision of alternate methods of transport, which will need to be included in the baseline, construction and operation phases.

The EIA will include an assessment of the local traffic impacts of the proposed development. Para. 6.5.12 states that *'the assessment is likely to consider two peak network hours (morning and evening) taking account of existing network conditions and the timing of anticipated traffic movements associated with the construction phase. It will focus on the local road network in the vicinity of the Sizewell power station complex, including consideration of the likely most affected local roads, namely:*

- *Sizewell Gap;*
- *Lover's Lane;*
- *the B1122;*
- *the B1069 through Leiston; and*
- *the A12 (though the effect here is likely to be small).'*

The EIA should make a robust data led case to justify restricting the analysis to the morning and evening peaks, particularly when addressing HGV movements. The list presented above does not support the statement that the impact on the A12 is 'likely to be small'.

In addition to comments made under 3.5 and 3.8 in this document, Suffolk County Council would welcome an aligned approach to identifying links selected for a noise assessment to highlight changes in traffic flows.

Suffolk County Council agrees that the worst case (para. 6.5.17) is maximum construction traffic plus maximum outage traffic and predicted background growth. It will be expected that the EIA addresses the effects of any Sizewell C activities if they occur within the estimated duration of the Sizewell B works.

Paragraph 6.6.5 indicates that some occasional but significant out of normal working hour's activities such as large concrete pours may continue overnight. In addition, owing to the current low traffic volumes, particularly on the B1122 after 18:00, increased HGV traffic in the evening and overnight may have a disproportional effect on local communities.

It is noted that Air Quality has been taken out of the scope of the EIA and that DRMB guidance need not apply to local Authority Highways (reference to para. 7.2.1). However, detail provided by Design Manual for Roads and Bridges (DMRB HA207/07 clause 3.15 (see quotation below) supports the view that air quality particularly that relating to the A12 Stratford St Andrew AQMA should be scoped in. It is strongly recommended that the other potential air quality 'hotspots' such as Theberton, Yoxford, Farnham and Little Glemham are also considered. DMRB HA207/07 states at clause 3.15 (emphasis added):

'If any roads are affected by the proposals and have relevant properties or Designated Sites nearby, then examine the available monitoring data and LAQM reports for the area likely to be affected by the project. If an AQMA has been declared for the pollutants of interest, the LAQM report should be carefully studied to identify the boundaries of the AQMA, where the actual Air Quality Strategy objective exceedance area is within the AQMA and whether the EU limit values are likely to be met at relevant properties in the relevant year. Identify areas where it is likely that air quality will improve or deteriorate as a result of changes to traffic flows and traffic speed, or as a result of reduced congestion or queuing times, due to the proposals.'

SCC Waste: Waste will be generated during demolition, construction and occupation of the site. This response assumes that no additional waste material will be imported onto the site but this will need to be scoped in if imported waste is to be part of the relocation project.

The scoping report refers to industry best practice on construction (para. 7.5.1), it reflects the waste hierarchy and concludes that this “would not have a significant environmental effect on the existing waste management capacity” (para. 7.5.2). This overall assessment does not, from the evidence contained in the scoping report, include consideration to radioactive wastes.

Section 6.7 of the report relates ground conditions, which are scoped in, and refers to potential radioactive material and the Asbestos used as lagging of the two disused reservoir tanks. Section 6.9 reviews the radiological conditions but from a perspective of the site itself rather than the fabric of the structures that are being demolished. Some reference is made (para. 6.9.10) “to safe excavation and management of waste should radioactive material be found”.

Given the position stated in para. 6.9.10, it is unclear whether any assessment of the likely level of radioactive waste generated has been undertaken at this stage. Such an assessment would need to be undertaken during the project. Advice contained in the “*Best Available Techniques (BAT) for the Management of the Generation and Disposal of Radioactive Wastes*” was agreed by the Nuclear Industry.¹ The guide is clear that the consideration of BAT should be incorporated as a standard requirement for all work “that will, or has the potential to, generate radioactive waste” and that BAT studies should be carried out in the early stages of any project design, including small scale projects (section 5.1.1).

The potential for radioactive wastes to be produced as part of the project – which is likely to be through the demolition of the existing structures - must be scoped into the EIA. The environmental implications arising from disposal of construction wastes from this project are more significant than other construction projects. The established processing routes for construction waste are appropriate for radioactive wastes.

The Suffolk Waste Core Strategy (2011) sets out two specific policies related to radioactive waste from Sizewell. Policies WDM14 and WDM15 are intended for use in connection with any additional proposals for the management of Very Low Level, Low Level and Intermediate Level Radioactive Wastes and spent fuel within the Sizewell A and B sites. The assessment of radioactive waste must categorise the waste according to guidance from the Office for Nuclear Regulation (e.g. Intermediate, Low Level and Very Low-Level wastes) and state whether the waste will be stored on site or transported for storage elsewhere or processed after treatment (reused, recycled or disposed) off-site according to, for example, the UK Nuclear Industry LLW Strategy.²

During operation, waste would be managed under existing site arrangements. To assess the potential generation of non-radioactive construction and demolition waste as referred under para. 7.5.3, it is recommended to use national statistics of construction and municipal wastes (by volume). Furthermore, the assessment should be undertaken in line with the Design Manual for Roads and Bridges Interim Guidance Note 153/11 – Guidance on the Environmental Assessment of Material Resources.

I have not received specific comments from SCDC’s conservation section but I am sure they would concur with Historic England’s comments.

I trust this information is of use to you in moving the Environmental Impact Assessment process forward. I look forward to further discussion regarding the content.

Yours sincerely

LISA CHANDLER BSc(Hons), MA, DMS, MRTPI
Sizewell C Planning Project Advisor

¹ Nuclear Industry Safety Directors Forum (2010) *Best Available Techniques (BAT) for the Management of the Generation and Disposal of Radioactive Wastes: A Nuclear Industry Code of Practice*

² DECC (2016) *UK Strategy for the Management of Solid Low Level Radioactive Waste from the Nuclear Industry*.

Ms. Lisa Chandler
Suffolk Coastal District Council
Council Offices Melton Hill
Woodbridge
Suffolk
IP12 1AU

Our ref: AE/2016/121076/01-L01
Your ref: DC/16/4691/EIA
Date: 24 November 2016

Dear Lisa

**Environmental Impact Assessment (EIA) Scoping Opinion
A request for a formal scoping opinion in accordance with Regulation 13(1) of the Town
and Country Planning (Environmental Impact Assessment) (England & Wales)
Regulations 2011 (as amended)**

Sizewell B Power Station, Sizewell Power Station Road, Sizewell, Leiston, IP16 4EU.

We refer to your letter of 8 November 2016 which requests our views on the Environmental Impact Assessment (EIA) Scoping Opinion (dated October 2016) related to the proposal to relocate a number of existing Sizewell B facilities to within and south of the existing Sizewell B station.

Environment Agency Position

After reviewing the EIA Scoping Report we are pleased to see, as far as our remit extends, that the topic areas we would expect to see have been included. There are also related assessments which will be needed including a Flood Risk Assessment and Water Framework Directive assessment; we have a particular interest in these two related assessments.

We are content with the topic chapters proposed to be ruled out however, there is one caveat to this, for waste; the application will still need to include sufficient information on the current approach to waste management and reduction on the Sizewell B site (see our comments under section 7.5). If this information can be provided elsewhere in the EIA document then, from our perspective, this would suffice.

2: Planning Context

2.4 Related Assessments

(b) Flood Risk Assessment

2.4.4 – We are the competent authority for flood risk relating to main rivers, the sea and reservoirs. Suffolk County Council (SCC), as the Lead Local Flood Authority (LLFA), are the competent authority for other sources of flooding including surface water, groundwater and ordinary watercourses. We will review the flood risk assessment – which will be submitted in support of your planning application – with respect to areas of Flood Zone 2 and 3; however, SCC will review your surface water drainage proposals from a flood risk perspective, so you will need to discuss this aspect of your proposal with them.

(c) Water Framework Directive

Environment Agency
Iceni House Cobham Road, Ipswich, IP3 9JD.
Customer services line: 03708 506 506
www.gov.uk/environment-agency

Cont/d..

2.4.5 – It is appropriate that a WFD assessment has been identified to be prepared for the planning application. As recognised, there are a number of WFD waterbodies that could potentially be affected by the proposals. We note the intention to engage with us to discuss the proposals within the context of the WFD compliance assessment needs.

6: Topics Scoped In

From our perspective we agree with the topics – as far as our remit extends – that are to be included in the EIA. We make specific comments under each topic heading as necessary.

6.1 Terrestrial Ecology

We believe that there is a potential risk for pollutants in the form of run-off during construction and operation phases from the proposed car park on Pillbox Field to enter the watercourse to the north of Pillbox Field and ultimately the Leiston Drain. As this could have impacts on the sediment input and water quality of the watercourses and ultimately WFD status we would like to see this reflected in the EIA and mitigation identified.

We would seek to ensure that the development will not result in any net loss of habitat. Indeed we would expect the EIA to identify enhancements as part of the proposals.

Section 6.7 – Land Quality and Hydrogeology

We agree that land quality and hydrology is scoped into the EIA. The approach set out in this chapter is broadly consistent with our requirements. The further discussion with us, which forms part of the proposals, will allow us to agree these in more detail as this becomes available.

Stage 1 – Risk Assessment

Section 6.7 – the proposed assessment methodology for land quality (land contamination) sets out a suitable approach for dealing with land contamination. At the planning stage, review of the Preliminary Conceptual Site Model (PCSM) which incorporates the findings of the ground investigations undertaken in 1994 and 2009 will determine whether or not there is a need for further ground investigations to identify land contamination.

Stage 2 – Impact Assessment

If significant contamination is found within the application area, any proposals to undertake piling on site should be accompanied by a piling risk assessment.

(ii) Hydrogeology

The Scoping Report indicates SuDS discharge will be to surface water. If infiltration SUDS is proposed the following will apply:

- 1.) Infiltration sustainable drainage systems (SuDS) such as soakaways, unsealed porous pavement systems or infiltration basins shall only be used where it can be demonstrated that they will not pose a risk to the water environment.
- 2.) Infiltration SuDS have the potential to provide a pathway for pollutants and must not be constructed in contaminated ground. They would only be acceptable if a phased site investigation showed the presence of no significant contamination.
- 3.) Only clean water from roofs can be directly discharged to any soakaway or watercourse. Systems for the discharge of surface water from associated hard-standing, roads and impermeable vehicle parking areas shall incorporate appropriate pollution prevention measures and a suitable number of SuDS treatment train components appropriate to the environmental sensitivity of the receiving waters.
- 4.) The maximum acceptable depth for infiltration SuDS is 2.0m below ground level, with a minimum of 1.2 m clearance between the base of infiltration SuDS and peak seasonal groundwater levels.

Section 6.8 – Surface Water and Flood Risk

Section 6.8.7 – the consideration of how the site is drained to prevent and minimise any pollution risk is an important aspect that will need to be considered – this is relevant to both the EIA and WFD compliance assessment. Special consideration must be given to protecting the SSSI.

We strongly recommend that the drainage system to the west and north of the site is not used for the disposal of any effluent or surface water. All effluents and surface water arising during construction or use of the new facilities should be directed to the site's drainage system and discharged to sea; all pollution prevention activities should take this requirement into account.

All appropriate pollution prevention measures must be employed when working near or over any watercourse. Any hazardous activities (e.g. refuelling) must be undertaken in protected or bunded areas. All construction activities should be undertaken with a view to not harming any watercourse. We must be consulted on any activity that may impact upon a watercourse.

Section 6.8.10 – the site boundary is at tidal and fluvial risk; areas of the application site are located within Flood Zones 1, 2 and 3 as defined by Table 1 of the 'Planning Practice Guidance: Flood Risk and Coastal Change'. To comply with national policy the application is required to pass the Sequential and Exception Tests and be supported by a site specific Flood Risk Assessment (FRA); the flood risk sequential approach should be applied and demonstrated to avoid areas of Flood Zones 2 and 3. We acknowledge that an FRA will be produced. For guidance on what to include in an FRA please refer to the Flood Zone 3 Fact Sheet attached with this response.

The proposal is for the relocation of a number of existing Sizewell B facilities. The facilities are currently sited to the north and west of the existing Sizewell B nuclear power station and will be relocated in line with Figure 3.4 revision 1.0, dated October 2016. It is understood that the relocated facilities will mainly be located within Flood Zone 1, excluding the access to the proposed outage car park which is to be located within the south west corner of the Pillbox Field which falls within Flood Zones 2 and 3. The development therefore appears to have been sequentially sited in the areas of lowest risk which is advisable.

Section 6.8.12 – it is stated that ground levels on the Sizewell B site and Pillbox Field are over 5mAODN. As part of the FRA a topographic survey should be provided and compared to our model flood levels to confirm this and establish if the proposed relocation areas are at risk.

As a section of the car park access road falls within the Flood Zones 2 and 3 we would recommend that land raising is avoided as this could displace flood water and increase flood risk elsewhere. This would be contrary to Paragraph 102 of the NPPF. If land raising is proposed then compensatory flood storage may be required.

Flood Response Plan – we note that the access route is located within an area at risk of flooding; this should be considered in the FRA. We advise that the Flood Response Plan for the site is updated to reflect the relocation works (as appropriate). The Local Council are the competent authority on matters of evacuation or rescue, and therefore should assess the adequacy of the evacuation arrangements, possible rescue of workers during a flood, temporary accommodation whilst flood waters subside, the safety of the route of access/egress from the site in a flood event or information in relation to signage, underwater hazards or any other particular requirements. The Local Council should consult their emergency planners.

Section 6.8.19 – PPGs have been withdrawn, but their guidance remains valid and we would support their use.

Section 6.8.23 – states that the Environment Agency will be consulted on the FRA approach. We refer you to our comments regarding Suffolk County Council and surface water drainage, made under section 2.4.4.

Ordinary Watercourse Consent – the proposal is located adjacent to Sizewell Drain an ordinary watercourse which falls under the jurisdiction of the East Suffolk Internal Drainage

Board. You may require consent from the IDB if you wish to undertake works on or near the watercourse.

Section 6.9 – Radiological

Currently the outage store contains a used Reactor Coolant Pump (RCP) which has been stored for a while pending a disposal route. The site are currently trying to determine whether in light of a new disposal route opening up, they should dispose of this pump (radioactive waste). As a disposal route is now available, the Office for Nuclear Regulation (ONR) may have a view with respect to their licence conditions on the accumulation of radioactive waste.

In the radiological chapter, 6.9, the scoping report references the Environmental Monitoring Programmes (EMP) undertaken by both the operator and regulator and how these confirm the low levels of radioactivity in the environment around the Sizewell sites. However, the impact on the EMP from relocation of the facilities needs to be taken into account. All the sample points are designed to effectively monitor both discharges and direct radiation from the site; the relocation may 'shield' radiological monitoring points reducing their effectiveness.

Consideration needs to be given to Best Available Techniques (BAT) in line with the Sizewell B environmental permit. The scoping report says that facilities being removed will be replaced on a 'like for like' basis. The opportunity to upgrade or update facilities such as the training centre should be considered. For example the training centre has a 'mock up' plant, which allows operators to train and practice procedures so they are familiar before carrying out the procedure on the radioactive part of the plant; this is considered BAT as the operator becomes 'quicker' at the job lowering doses and reducing waste.

7: Topics Scoped Out

7.5 – Waste

We note your proposal to scope out waste from the EIA. It is our recommendation – and expectation – that the planning application will set out the existing site procedures and processes for Sizewell B (referred to in section 3.7 of the scoping report), what their targets will be, their obligations under the Waste Framework Directive and how they intend to minimise waste produced both at the demolition and construction phases. Provided that this information is contained within the proposed development section of the EIA (which has been proposed) – we are comfortable that there does not need to be a specific waste chapter.

We trust our advice is useful.

Yours sincerely



Mr Graham Steel

Sustainable Places Advisor

Graham.Steel@environment-agency.gov.uk

0203 025 83 89

Lisa Chandler
Planning Department
Suffolk Coastal District Council
Melton Hill
Woodbridge
IP12 1AU

25/11/2016

Dear Lisa,

RE: DC/16/4691/EIA Relocation of a number of existing Sizewell B facilities to within and south of the existing Sizewell B station. Once the proposed new facilities are constructed the existing facilities would be demolished. Sizewell B, Sizewell Power Station, Sizewell Power Station Road, Sizewell, Leiston

Thank you for sending us details of this EIA Scoping Opinion, we have the following comments:

We have read the ecology section of the EIA Scoping report (EDF Energy, Oct 2016) and we note the proposed scope of the ecological impact assessment (EclA). Whilst we are broadly satisfied with the scope of the ecological impact assessment proposed, it must be ensured that it is based upon up to date survey information. It is generally considered that such survey information should not be more than two survey seasons old.

We are also concerned about the apparent loss of semi-natural habitat as part of the proposal. The mitigation hierarchy must be applied to all proposals and if impacts cannot be avoided or mitigated, they must be fully justified and compensated.

If you require any further information, please do not hesitate to contact us.

Yours sincerely

James Meyer
Senior Conservation Planner

Date: 29 November 2016
Our ref: 201395
Your ref: DC/16/4691/EIA



Ms Lisa Chandler
Suffolk Coastal District Council
Melton Hill
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IP12 1AU

Hornbeam House
Crewe Business Park
Electra Way
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C W1 6GJ

BY EMAIL ONLY

T 0300 060 3900

Dear Ms Chandler,

Environmental Impact Assessment Scoping consultation (Regulation 15 (3) (i) of the EIA Regulations 2011 as amended): Relocation of a number of existing Sizewell B facilities to within and south of the existing Sizewell B station. Once the proposed new facilities are constructed the existing facilities would be demolished.

Location: Sizewell B Sizewell Power Station Sizewell Power Station Road Sizewell Leiston Suffolk IP16 4EU

Thank you for your consultation dated and received by Natural England on 14 November 2016.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

The scoping request is for a proposal that does not appear, from the information provided, to affect any nationally designated geological or ecological sites (Ramsar, SPA, SAC, SSSI, NNR) or landscapes (National Parks, AONBs, Heritage Coasts, National Trails), or have significant impacts on the protection of soils (particularly of sites over 20ha of best or most versatile land), nor is the development for a mineral or waste site of over 5ha.

At present therefore it is not a priority for Natural England to advise on the detail of this EIA. We would, however, like to draw your attention to some key points of advice, presented in annex to this letter, and we would expect the final Environmental Statement (ES) to include all necessary information as outlined in Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2011. If you believe that the development does affect one of the features listed in paragraph 3 above, please contact Natural England at consultations@naturalengland.org.uk, and we may be able to provide further information.

Yours sincerely

Miss Rachel Bowden
Consultations Team

Annex A – Advice related to EIA Scoping Requirements

1. General Principles

Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2011 (as amended), sets out the necessary information to assess impacts on the natural environment to be included in an ES, specifically:

- A description of the development – including physical characteristics and the full land use requirements of the site during construction and operational phases.
- Expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed development.
- An assessment of alternatives and clear reasoning as to why the preferred option has been chosen.
- A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the interrelationship between the above factors.
- A description of the likely significant effects of the development on the environment – this should cover direct effects but also any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects. Effects should relate to the existence of the development, the use of natural resources and the emissions from pollutants. This should also include a description of the forecasting methods to predict the likely effects on the environment
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
- A non-technical summary of the information.
- An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

It will be important for any assessment to consider the potential cumulative effects of this proposal, including all supporting infrastructure, with other similar proposals and a thorough assessment of the ‘in combination’ effects of the proposed development with any existing developments and current applications. A full consideration of the implications of the whole scheme should be included in the ES. All supporting infrastructure should be included within the assessment.

2. Biodiversity and Geology

2.1. Ecological Aspects of an Environmental Statement

Natural England advises that the potential impact of the proposal upon features of nature conservation interest and opportunities for habitat creation/enhancement should be included within this assessment in accordance with appropriate guidance on such matters. [Guidelines for Ecological Impact Assessment \(EclA\)](#) have been developed by the Chartered Institute of Ecology and Environmental Management (CIEEM) and are available on their website.

EclA is the process of identifying, quantifying and evaluating the potential impacts of defined actions on ecosystems or their components. EclA may be carried out as part of the EIA process or to support other forms of environmental assessment or appraisal.

The National Planning Policy Framework ([NPFF](#)) sets out guidance in S.118 on how to take account of biodiversity interests in planning decisions and the framework that local authorities should provide to assist developers.

2.2. Internationally and Nationally Designated Sites

Natural England undertakes an initial assessment of all development consultations, by determining whether the location to which they relate falls within geographical ‘buffer’ areas within which development is likely to affect designated sites. The proposal is located outside these buffer areas and therefore appears unlikely to affect an Internationally or Nationally designated site. However, it should be recognised that the specific nature of a proposal may have the potential to lead to significant impacts arising at a greater distance than is encompassed by Natural England’s buffers for designated

sites. The ES should therefore thoroughly assess the potential for the proposal to affect designated sites, including Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites and Sites of Special Scientific Interest (SSSI). Should the proposal result in an emission to air or discharge to the ground or surface water catchment of a designated site then the potential effects and impact of this would need to be considered in the Environmental Statement

Local Planning Authorities, as competent authorities under the provisions of the Conservation of Habitats and Species Regulations 2010 (the 'Habitats Regulations'), should have regard to the Habitats Regulations Assessment process set out in Regulation 61 of the Habitats Regulations in their determination of a planning application. Should a Likely Significant Effect on a European/Internationally designated site be identified or be uncertain, the competent authority (in this case the Local Planning Authority) may need to prepare an Appropriate Assessment, in addition to consideration of impacts through the EIA process.

Statutory site locations can be found at www.magic.gov.uk. Further information concerning particular statutory sites can be found on the [Natural England website](#).

2.3. Protected Species

The ES should assess the impact of all phases of the proposal on protected species. Records of protected species should be sought from appropriate local biological record centres, nature conservation organisations, groups and individuals; and consideration should be given to the wider context of the site for example in terms of habitat linkages and protected species populations in the wider area, to assist in the impact assessment.

The conservation of species protected by law is explained in Part IV and Annex A of Government Circular 06/2005 *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*. The area likely to be affected by the proposal should be thoroughly surveyed by competent ecologists at appropriate times of year for relevant species and the survey results, impact assessments and appropriate accompanying mitigation strategies included as part of the ES.

Natural England has adopted [standing advice](#) for protected species. It provides a consistent level of basic advice which can be applied to any planning application that could affect protected species. It also includes links to guidance on survey and mitigation.

Natural England does not hold comprehensive information regarding the locations of species protected by law, but advises on the procedures and legislation relevant to such species.

2.4. Regionally and Locally Important Sites

The ES should thoroughly assess the impact of the proposals on non-statutory sites, for example Local Wildlife Sites (LoWS), Local Nature Reserves (LNR) and Regionally Important Geological and Geomorphological Sites (RIGS). Natural England does not hold comprehensive information on these sites. We therefore advise that the appropriate local biological record centres, nature conservation organisations, Local Planning Authority and local RIGS group should be contacted with respect to this matter.

2.5. Biodiversity Action Plan Habitats and Species

The ES should thoroughly assess the impact of the proposals on habitats and/or species listed in the UK Biodiversity Action Plan (BAP). These Priority Habitats and Species are listed as 'Habitats and Species of Principal Importance' within the England Biodiversity List, recently [published](#) under the requirements of S14 of the Natural Environment and Rural Communities (NERC) Act 2006. Section 40 of the NERC Act 2006 places a general duty on all public authorities, including local planning authorities, to conserve and enhance biodiversity. Further information on this duty is available in the Defra publication '[Guidance for Local Authorities on Implementing the Biodiversity Duty](#)'.

Government Circular 06/2005 states that BAP species and habitats, 'are capable of being a material consideration...in the making of planning decisions'. Natural England therefore advises that survey,

impact assessment and mitigation proposals for Habitats and Species of Principal Importance should be included in the ES. Consideration should also be given to those species and habitats included in the relevant Local BAP.

The record centre for the relevant Local Authorities should be able to provide the relevant information on the location and type of BAP habitat for the area under consideration.

3. Landscape, Access and Recreation

3.1. Landscape and Visual Impacts

The consideration of landscape impacts should reflect the approach set out in the *Guidelines for Landscape and Visual Impact Assessment* (Landscape Institute and the Institute of Environmental Assessment and Management, 2013, 3rd edition), the *Landscape Character Assessment Guidance for England and Scotland* (Scottish Natural Heritage and The Countryside Agency, 2002) and good practice. The assessment should also include the cumulative effect of the development with other relevant existing or proposed developments in the area. In this context Natural England would expect the cumulative impact assessment to include those proposals currently at Scoping stage. Due to the overlapping timescale of their progress through the planning system, cumulative impact of the proposed development with those proposals currently at Scoping stage would be likely to be a material consideration at the time of determination of the planning application.

The assessment should refer to the relevant [National Character Areas](#) which can be found on our website. Links for Landscape Character Assessment at a local level are also available on the same page.

3.2. Access and Recreation

The ES should include a thorough assessment of the development's effects upon public rights of way and access to the countryside and its enjoyment through recreation. With this in mind and in addition to consideration of public rights of way, the landscape and visual effects on Open Access land, whether direct or indirect, should be included in the ES.

Natural England would also expect to see consideration of opportunities for improved or new public access provision on the site, to include linking existing public rights of way and/or providing new circular routes and interpretation. We also recommend reference to relevant Right of Way Improvement Plans (ROWIP) to identify public rights of way within or adjacent to the proposed site that should be maintained or enhanced.

4. Land use and soils

Impacts from the development should be considered in light of the Government's policy for the protection of the best and most versatile (BMV) agricultural land as set out in paragraph 112 of the NPPF. We also recommend that soils should be considered under a more general heading of sustainable use of land and the valuing of the ecosystem services they provide as a natural resource in line with paragraph 109 of the NPPF.

Soil is a finite resource that fulfils many important functions and services (ecosystem services) for society; for instance as a growing medium for food, timber and other crops, as a store for carbon and water, as a reservoir of biodiversity and as a buffer against pollution. It is therefore important that the soil resources are protected and used sustainably. The Natural Environment White Paper (NEWP) *'The Natural Choice: securing the value of nature'* (Defra, June 2011), emphasises the importance of natural resource protection, including the conservation and sustainable management of soils and the protection of BMV agricultural land.

Development of buildings and infrastructure prevents alternative uses for those soils that are permanently covered, and also often results in degradation of soils around the development as result of construction activities. This affects their functionality as wildlife habitat, and reduces their ability to support landscape works and green infrastructure. Sealing and compaction can also contribute to increased surface run-off, ponding of water and localised erosion, flooding and pollution.

Defra published a Construction [Code of Practice for the sustainable use of soils on construction sites](#) (2009). The purpose of the Code of Practice is to provide a practical guide to assist anyone involved in the construction industry to protect the soil resources with which they work.

As identified in the NPPF new sites or extensions to new sites for Peat extraction should not be granted permission by Local Planning Authorities or proposed in development plans.

General advice on the agricultural aspects of site working and reclamation can be found in the Defra [Guidance for successful reclamation of mineral and waste sites](#).

5. Air Quality

Air quality in the UK has improved over recent decades but air pollution remains a significant issue; for example over 97% of sensitive habitat area in England is predicted to exceed the critical loads for ecosystem protection from atmospheric nitrogen deposition ([England Biodiversity Strategy](#), Defra 2011). A priority action in the England Biodiversity Strategy is to reduce air pollution impacts on biodiversity. The planning system plays a key role in determining the location of developments which may give rise to pollution, either directly or from traffic generation, and hence planning decisions can have a significant impact on the quality of air, water and land. The assessment should take account of the risks of air pollution and how these can be managed or reduced. Further information on air pollution impacts and the sensitivity of different habitats/designated sites can be found on the Air Pollution Information System (www.apis.ac.uk). Further information on air pollution modelling and assessment can be found on the Environment Agency website.

6. Climate Change Adaptation

The [England Biodiversity Strategy](#) published by Defra establishes principles for the consideration of biodiversity and the effects of climate change. The ES should reflect these principles and identify how the development's effects on the natural environment will be influenced by climate change, and how ecological networks will be maintained. The NPPF requires that the planning system should contribute to the enhancement of the natural environment "by establishing coherent ecological networks that are more resilient to current and future pressures" ([NPPF](#) Para 109), which should be demonstrated through the ES.



Historic England

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Mrs Lisa Chandler
Planning Department
Suffolk Coastal District Council
Melton Hill
Woodbridge
Suffolk
IP12 1AU

Direct Dial: 01223 582710

Our ref: P00537630

2 December 2016

Dear Mrs Chandler

**SIZEWELL B, SIZEWELL POWER STATION, SIZEWELL POWER STATION ROAD,
SIZEWELL, LEISTON, SUFFOLK, IP16 4EU**
Your Ref: DC/16/4691/EIA

Thank you for your letter of 14th Nov 2016 with a formal request for a scoping opinion in relation to the above application, in accordance with Regulation 13 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011. Historic England, as the government's lead advisors on the historic environment would like to offer our comments on this proposal, taking into consideration the information provided by the applicant. This is primarily the Scoping Report (EDF Ref: SZB/REP/PD/4C850A0/001, dated Oct 2016) with associated site plans. We understand that the developed will comprise of the relocation of a number of existing facilities at Sizewell B power station and the demolition of the existing buildings.

Historic England Advice

The historic environment is a finite and non-renewable environmental resource which includes designated and non-designated heritage assets, historic landscapes and sites of historic and evidential interest. It is a rich and diverse part of England's cultural heritage and makes a valuable contribution to our cultural, social and economic life.

This development area lies within a wider historic landscape containing a number of designated and non-designated heritage assets. The baseline study is discussed in the Historic Environment section of the scoping report (see paragraph 6.3 Historic Environment).

We acknowledge that the development area has already been studied in detail and has been subject to a number of assessments; this includes amongst others, a desk-based assessment, a peat study, geophysical survey and an assessment of WWII military remains. We therefore agree that the report has considered designated and non-designated assets and that the assessment methodologies presented are suitable. We also agree that the mitigation as presented in chapter's 6.3.27- 6.3.36 (pp 44-45) for non-designated archaeology matters is appropriate.



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We are increasingly aware of the potential importance of the existing buildings that relate to development of Britain's nuclear industry, and that these buildings may have an intrinsic interest beyond their current life. Assets that demonstrate or illustrate important developments of the nuclear industry would be considered as non-designated heritage assets. This has been discussed with the applicant at the pre-application stage and the report acknowledges this in paragraph 6.3.18. Separate mitigation for the demolished buildings is considered under 6.3.31, which considers a level 2 recording of the buildings that are to be demolished.

Although a level 2 record would be appropriate for the majority of the buildings affected by this development, ideally we would like to see an approach that would see the adoption of a site wide heritage strategy. A heritage strategy would ensure records are made during decommissioning and historically significant documents and artefacts are identified, and recorded. This may include for example the creation of building closure 'packs' for each structure to be demolished or remediated. This may already be part of the process that is adopted here, as it has been at other similar sites in the UK, and we recognise that although the results of this work may not be available to view for security reasons, that these documents may have a historic interest and that they merit long term curation.

We therefore agree that a level 2 record would be appropriate for buildings 05- Outage store, 06- Civils workshop and store, 07- Outage laydown, 08- Base area facility, 09- Outage Portakabin city 2, 10- Outage office, 11- Projects office, 13- Oil & Chemical store and 15- Sizewell A reservoir tanks. However the 03 Visitor Centre, was purpose-built and these buildings were a distinctive feature of the industry until 2011 therefore in addition to level 2 any original plans, contemporary photographs, publicity material would also be worthy of retention. Likewise, 04- Operations Training Centre and 12- Technical training centre, may have contained simulators to train the personnel in control room operation and other functions, therefore in addition to the level 2 record it would be worth securing archive material, and inert training aids and related artefacts.

Overall in relation to this project, and national planning policy, we feel it would be important to assess the impact on these heritage assets within the policy tests established by the National Planning Policy Framework. If an Environmental Statement is considered necessary, the applicant would need to provide sufficient information within the Environment Statement to understand the impacts of the development upon the historic environment. The EIA should explore the ideas of benefit, harm and loss (as described in NPPF) to set out 'what matters and why' in terms of the heritage assets' significance and setting, together with the effects of the development upon them. We advise that all supporting technical information (desk-based assessments, building analysis, evaluation and post-excavation reports etc.) are included as appendices. Where relevant, the cultural heritage should be cross-referenced to other chapters or technical appendices; for example noise, light, traffic



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and landscape.

In addition to established policy and guidance, Good Practice Advice notes 1, 2 and 3 have now been published. These supersede the PPS 5 Practice Guide, which has been withdrawn. Guidance on setting is incorporated into GPA 3 and this supersedes the advice previously published as The Setting of Heritage Assets. This guidance provides a thorough discussion of setting and methods for considering the impact of development on setting. It is worth noting however that whilst the standardised EIA matrices are a useful tool, we consider the analysis of setting (and the impact upon it) as a matter of qualitative and expert judgment which cannot be achieved solely by use of systematic matrices or scoring systems. Historic England therefore recommends that these should be seen primarily as material supporting a clearly expressed and non-technical narrative argument within the cultural heritage chapter. We would also recommend that the Scoping report should include reference to our most recent recording guidance on power stations, which although directed at conventional stations has principles that are also appropriate for use on nuclear sites. The guidance note is available from <https://www.historicengland.org.uk/images-books/publications/englands-redundant-post-war-coal-and-oil-fired-power-stations/>

Recommendations

We have considered the scoping report and should an Environmental Statement be considered necessary then we agree that it is appropriate to consider the impact of the development on the significance of designated and non-designated heritage assets and their setting. We accept the approach and methodologies, and consider that they would set out an approach that is suitable to ensure this would happen. Additional advice in relation to the recording of the buildings is also set out above, alongside reference to recent recording guidance.

ly


Will Fletcher

Inspector of Ancient Monuments

E-mail: will.fletcher@HistoricEngland.org.uk



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From: d.c.admin
Sent: 30 August 2005 14:47
To: Charlie Bixby
Subject: DC/16/4691/EIA - ACS > CB 25/11

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Consultees

From: Rachael Abraham [mailto:Rachael.Abraham@suffolk.gov.uk]
Sent: 25 November 2016 08:44
To: d.c.admin
Cc: Lisa Chandler
Subject: RE: Planning App. Consultation - DC/16/4691/EIA

Dear Lisa,

Suffolk County Council are currently preparing a joint response to this consultation. However, so that you are aware of our comments regarding the historic environment impacts of this proposal at the earliest opportunity, please find below our comments regarding the proposed scheme and the EIA scoping report:

We are pleased to see that the historic environment has been scoped in as a key impact of this proposal.

In general we are happy with the contents of the Historic Environment chapter, as in the main it does accurately identify the known heritage assets within the proposal area which will be impacted upon by the proposed works, as well as the potential for encountering previously unknown remains. In addition the proposed assessment methodology is generally sound.

We would just raise a few points:

- Depending upon the works proposed to the north of Sizewell B (which is currently planned for stockpiling), further archaeological test pitting or assessment may be required. Test pits were dug in the southern half of this area, subject to archaeological monitoring, which identified substantial made ground across the area surveyed. However, the northern half of this area was not included within this survey and so we need further information as to whether this area has also seen extensive disturbance or if there may be areas where there is potential for archaeological remains to survive. If additional borehole data is available for this part of the site, we would be pleased to review the contents as this may help to inform the suggested approach in this area.
- We are generally in agreement regarding the proposed assessment methodology for Coronation Wood. Before any fieldwork commences, historic mapping, aerial photography and LIDAR data should all be assessed for this area. We would ask that the walkover assessment is carried out at the earliest opportunity in case earthwork remains are identified which are worthy of leaving in situ and therefore which should be avoided/ designed around during the proposed works. Care should also be taken during the felling work to avoid disturbance to any earthworks which may survive and also any below ground disturbance through rutting. We are happy to provide guidance regarding this based upon standard guidance which has been developed in Norfolk and Suffolk for works in woodland. Provision should also be made for trial trenched archaeological evaluation in this area following the walkover and other surveys, as there is also below ground archaeological potential which has not yet been appropriately assessed.
- We would support the suggested mitigation approach within Pillbox Field and also the recording of any buildings to be demolished which are of historic interest.
- On request, we are happy to produce a brief which outlines the archaeological assessments

required for the different elements of this proposal, in order to inform the development of WSIs for this work. We would ask to have the opportunity to comment on all WSIs before they are approved.

The walkover survey in Coronation Wood should be carried out at the earliest opportunity. However, we would have no objection to all other works being undertaken as a condition of any granted consents for this proposal and we will be happy to advise on appropriately worded archaeological conditions. When the outstanding archaeological assessments have been completed and detailed plans are developed, we will be able to comment on the specific mitigation requirements for this scheme.

Best wishes,
Rachael

Rachael Abraham
Senior Archaeological Officer

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www.twitter.com/SCCArchaeology

-----Original Message-----

From: d.c.admin@eastssuffolk.gov.uk [mailto:d.c.admin@eastssuffolk.gov.uk]

Sent: 08 November 2016 14:09

To: RM Archaeology Mailbox <archaeology@suffolk.gov.uk>

Subject: Planning App. Consultation - DC/16/4691/EIA

Please see attached document

Any requests made under the Freedom of Information Act or the Environmental Information Regulations should be redirected to foi@eastssuffolk.gov.uk clearly stating whether the request applies to Suffolk Coastal District Council, Waveney District Council or both authorities.

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MEMORANDUM

From Head of Environmental Services and Port Health – Environmental Protection **To** Head of Planning Services

Our ref 16/05996/PLNAPP

Your ref DC/16/4691/EIA

Date 23rd November 2016

SIZEWELL B, SIZEWELL POWER STATION, SIZEWELL POWER STATION ROAD, SIZEWELL

ENVIRONMENTAL INFORMATION SCOPING REPORT

PROPOSED DEVELOPMENT:

RELOCATION OF A NUMBER OF EXISTING SIZEWELL B FACILITIES TO WITHIN AND SOUTH OF THE EXISTING SIZEWELL B STATION. ONCE THE PROPOSED NEW FACILITIES ARE CONSTRUCTED THE EXISTING FACILITIES WOULD BE DEMOLISHED.

Head of Environmental Services and Port Health – Environmental Protection

Comments

I refer to the Environmental Information Scoping Report dated October 2016 in respect to the relocation of facilities at Sizewell B Power Station. It is noted that this scoping report includes broad details of the following: The facilities to be moved; a sequential approach to the re-siting of facilities; identification of receptors; an environmental management system; consideration of alternatives; assessment of effects; magnitude of significance; sensitivity of receptor; mitigation of impacts.

The factors of particular interest to Environmental Protection are the assessment and mitigation of the following elements; noise and vibration, air quality assessment (including dust), waste management (including potential contaminants and unexploded ordnance). I am satisfied with the content of the scoping report but would wish to specifically mention the following items to ensure they are included within the Environmental Impact Assessment Statement;

1. The hours of operation for all constructional activities and any traffic movements to or from the site shall be limited to 07:00 to 19:00 hours Monday to Saturdays and none on Sundays or Bank Holidays. Except;-
 - Where continuous periods of operation are required, such as concrete pouring,
 - For the delivery of abnormal loads to the site which may cause congestion on the local road network.

Prior agreement shall be sought from the Local Planning Authority for all operations, which are to be undertaken outside the above times.

2. Contractors shall be required to demonstrate that;-
 - Good practice procedures to minimise noise are instigated as set out in Part 1: of BS5228:2009+A1:2014);
 - Best Practicable Means (BPM) as defined in Section 72, of the Control of Pollution Act 1974 (COPA);

have been applied to all works.

3. All residents who are likely to be affected by constructional noise that exceeds 64dBA expressed as a 1 Hour LAeq value shall be notified at least 24 Hours in advance of the works and given an estimate of how long the elevated noise levels will continue.
4. Details of all operational plant at re-sited facilities which may give rise to noise beyond the site boundary shall be presented together with a scheme to mitigate the resultant noise to achieve the existing background noise levels at any residential property.
5. Where constructional operations are likely to produce dust which will be emitted beyond the site boundary, a detailed scheme of dust suppression shall be agreed with the Local Planning Authority prior to the commencement of such works.
6. Details of the location, height, design, any activity sensors and illuminance of all floodlighting used during construction shall be agreed with the Local Planning Authority prior to the commencement of the development. Measures to limit obtrusive glare to nearby residential property and to minimise sky glow shall be incorporated in the design of the floodlighting.
7. Where any contaminated material or unexploded ordnance is identified and is required to be moved from site, or alternatively where any contaminants are identified and are to be encapsulated on site, full details of the process shall be submitted in a remediation method statement to the Local Planning Authority. Only an approved scheme shall be implemented in its entirety.
8. Any contaminants discovered during the construction phase of the development shall be remediated in accordance with the remediation plan. The Environmental Protection Team at Suffolk Coastal District Council shall be notified in writing at least seven days prior to any removal or encapsulation of any contaminants.
9. The Local Planning Authority shall require written validation that -
 - i) All contaminated material removed from the site is removed by an appropriate licensed contractor to a facility approved by the Environment Agency. Details of contractors and movement permits should be retained for this purpose,
 - ii) All imported material is suitable for its intended use and certified to CLEA standard, as specified in the European Community Directive 80/778). Details of certified materials should be retained for this purpose,
 - iii) Remediation measures have been undertaken to render the site suitable for its specified use.
10. A decommissioning plan for these re-located facilities including;
 - The types of work that will be required;
 - The structures to be removed;
 - The disposal of waste material and
 - The suitability of the site for restoration or future use.

VOLUME II:
TECHNICAL APPENDICES

5.3 Air Quality Technical Note

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CONTENTS

1.1	Introduction.....	1
1.2	Air Quality at Stratford St Andrew.....	2
	References.....	5

TABLES

Table 1-1:	Traffic Flow Data for A12 through Stratford St Andrew, with Sizewell C	2
Table 1-2:	Traffic Flow Data for A12 through Stratford St Andrew, without Sizewell C	3
Table 1-3:	Traffic Flow Data for B1122 at Leiston north of Lovers Lane, with Sizewell C	3
Table 1-4:	Traffic Flow Data for B1122 at Leiston north of Lovers Lane, without SZC.....	4

PLATES

N/A

FIGURES

N/A

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APPENDIX 5.3 AIR QUALITY

1.1 Introduction

- 1.1.1 This technical note provides a response to the Scoping Opinion provided by Suffolk Coastal District Council (SCDC)¹ regarding the scope of air quality impact assessment with consideration to Sizewell B Relocated Facilities EIA Scoping Report, Document Reference SZB/REP/PD/4C850A0/001 ('Scoping Report').
- 1.1.2 In the Scoping Report, the potential for significant effects on local air quality was considered with respect to operational and construction phase activities and scoped out based on the following:
- The construction phase is unlikely to generate sufficient additional vehicle movements on local roads for the emissions to have a likely material effect on local air quality.
 - Adequate dust management measures being proposed and secured through the use of a Construction Environmental Management Plan (CEMP); and
 - The operational scheme includes the relocation of existing facilities on a like for like basis in terms of use and activities and would not result in additional operational traffic or emissions sources compared with the existing facilities.
- 1.1.3 Air quality monitoring in 2011 alerted SCDC to the potential exceedance of the air quality objective value for annual mean concentrations of nitrogen dioxide at properties near to the 30mph speed limit sign on the A12 at Stratford St Andrew. An Air Quality Management Area (AQMA) was subsequently declared in 2016 for four properties on Long Row cottages. SCDC expressed the view during the statutory consultation for EIA scoping that consideration should be given to the likelihood of significant effects within Stratford St Andrew and at other potential air quality 'hotspots' such as Theberton, Yoxford, Farnham and Little Glemham.
- 1.1.4 This technical note reconsiders the likelihood of significant effects on local air quality at Stratford St Andrew and potential 'hot spot' locations occurring due to construction phase traffic emissions associated with the Proposed Development.

¹ On the 1st April 2019, Suffolk Coastal District Council merged with Waveney District Council to create East Suffolk Council. All pre application consultation and engagement which has taken place to date with the local planning authority was carried out with Suffolk Coastal District Council and therefore referred to as such within the documentation.

1.2 Air Quality at Stratford St Andrew

- 1.2.1 Since 2016 when the AQMA was declared, SCDC have explored options to achieve compliance with the annual mean objective for nitrogen dioxide within the Stratford St Andrew AQMA. The high measured concentrations of nitrogen dioxide may have been due to vehicles on the A12 changing speed as they transitioned between the 30mph zone to a 50mph zone. Vehicles undergoing breaking or acceleration emit proportionally more oxides of nitrogen than vehicles travelling at a steady speed. SCDC and Waveney District Council’s joint 2018 Air Quality Annual Status Report (ASR) (Ref. 1) reported that the 30mph - 50mph signage was moved approximately 200m further out of the village relative to its former location in December 2017. The timing of this change therefore would not have influenced the 2017 annual mean concentration of nitrogen dioxide in the AQMA which was measured at 39 µg/m³. At all other sites within the administrative area nitrogen dioxide concentrations were also less than the air quality objective value in 2017 (Ref.1).
- 1.2.2 A summary of traffic flow data estimated for the A12 South of A1094 (representing flows in Stratford St Andrew) is provided in Table 1-1 on the basis of the traffic flows used in the **Environmental Statement Volume I: Chapter 10 Transport** and Sizewell C Stage 3 consultation (Ref. 2). The data includes flows of light duty vehicles (LDV) and heavy duty vehicles (HDV).
- 1.2.3 The 2015 values represent baseline traffic flows and have been derived from Sizewell C Stage 3 transport modelling. The 2022 baseline represents a scenario where the Proposed Development does not go ahead, but does include vehicle movements associated with other reasonably foreseeable developments (i.e. Sizewell C early works traffic and construction traffic associated with the Scottish Power Renewables East Anglia 1 North (EA1N) and East Anglia 2 (EA2) schemes (refer to **Chapter 10: Transport** of the Environmental Statement for further information). The 2022 with Proposed Development traffic data represents the same 2022 base scenario, but where the Proposed Development does go ahead. Table 1-2 shows the same set of data under the scenario where Sizewell C does not come forward. All traffic flow data shown accounts for outage traffic associated with a maintenance outage at Sizewell B power station for a worst case assessment of traffic flows.

Table 1-1: Traffic Flow Data for A12 through Stratford St Andrew, with Sizewell C

Scenario	2 way 24hr AADT LDV + HDV flow (veh/d)	2 way 24hr AADT HDV flow (veh/d)	%HDV (%)
2015 Baseline	18000	900	5.0
2022 Baseline with SZC	21508	1902	8.8
2022 With SZB RF and SZC	21634	1989	9.2

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Table 1-2: Traffic Flow Data for A12 through Stratford St Andrew, without Sizewell C

Scenario	2 way 24hr AADT LDV + HDV flow (veh/d)	2 way 24hr AADT HDV flow (veh/d)	%HDV (%)
2018 Baseline	18000	900	5.0
2022 Baseline without SZC	19647	790	4.0
2022 With SZB RF and without SZC	19772	876	4.4

- 1.2.4 The additional traffic flows on the A12 forecast for 2022 with the Proposed Development increase the total flow by up to 87 HDV movements per day and 126 LDV movements per day, relative to 2022 baseline conditions. These increases apply to scenarios with and without Sizewell C. With consideration to the new speed limit changes through Stratford St. Andrew as described in paragraph 1.2.1 and the expected improvements in fleet emissions for 2022, it is predicted that these marginal increases to vehicle flow will not cause a significant effect on local air quality. It is estimated that with peak construction of the Proposed Development in 2022, concentrations of nitrogen dioxide will be lower than is currently observed in Stratford St. Andrew. In addition to this, modelled flows with Sizewell C in place will benefit from the highway works to be undertaken as part of the Sizewell C project, namely the Two Village Bypass. This excess traffic will not travel through the identified air quality hotspot in Stratford St. Andrew. On the basis of the above, the decision to scope out this potential air quality impact from EIA remains robust and justified.
- 1.2.5 The same changes in traffic flows shown on the A12 for Stratford St Andrew (Table 1-1 and Table 1-2 above) would also apply to Little Glemham, Farnham and Yoxford air quality hotspots; the conclusions of the air quality impacts in Stratford St. Andrew would therefore also apply to these locations.
- 1.2.6 A summary of traffic flow data for the B1122 is provided in Table 1-3, with the same traffic year scenarios as described in paragraph 1.2.3. Table 1-4 shows the same set of data under the scenario without Sizewell C. Traffic data for this location is highlighted in this technical note, as it represents traffic flow through the village of Theberton.

Table 1-3: Traffic Flow Data for B1122 at Leiston north of Lover's Lane, with Sizewell C

Scenario	2 way 24hr AADT LDV + HDV flow (veh/d)	2 way 24hr AADT HDV flow (veh/d)	%HDV (%)
2018 Baseline	4778	177	3.7
2022 Baseline with SZC	7092	810	11.4
2022 With SZB RF and SZC	7247	912	12.6

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Table 10-4: Traffic Flow Data for B1122 at Leiston north of Lover's Lane, without SZC

Scenario	2 way 24hr AADT LDV + HDV flow (veh/d)	2 way 24hr AADT HDV flow (veh/d)	%HDV (%)
2018 Baseline	4778	177	3.7
2022 Baseline without SZC	5683	178	3.1
2022 With SZB RF without SZC	5839	280	4.8

- 1.2.7 In 2022, with the Proposed Development, there is expected to be an increase in the flow of LDVs and HDVs relative to the 2022 baseline scenario (up to 102 HDV (AADT) movements). This would give rise to a marginal increase in emissions from road traffic in Theberton. Air quality is considered to be below the air quality limit values for nitrogen dioxide in this location (no exceedances of nitrogen dioxide emissions have been recorded on the B1122 in Leiston, which is the closest monitoring location, Ref. 1). Therefore, an increase in traffic flows of this scale is unlikely to cause a significant effect. This evidence is consistent with the conclusion of the EIA Scoping Report that the Proposed Development is unlikely to have a significant effect on air quality at any location, including the air quality 'hot spots'.
- 1.2.8 Notwithstanding the above, as stated in the Environmental Statement and associated documents, construction air quality effects will be controlled and minimised using appropriate best practice management techniques as set out within the Outline CEMP (see **Appendix 3.3**). These will be used by the contractor to develop a detailed CEMP that will include dust suppression and control measures that will be used to mitigate any air quality impacts from the proposed demolition and construction works associated with the Proposed Development.

REFERENCES

- Ref. 1 Suffolk Coastal and Waveney District Councils (2018) 2018 Air Quality Annual Status Report
- Ref. 2 EDF Energy (2019) Sizewell C Preliminary Environmental Information Report. Available at: <https://www.edfenergy.com/energy/nuclear-new-build-projects/sizewell-c/proposals/stage-3#documents>

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VOLUME II:
TECHNICAL APPENDICES

7.1 Landscape and Visual Impact Assessment Methodology

Sizewell

Landscape and Visual Impact Assessment Methodology
16 October 2018

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16 October 2018
Sizewell

16 October 2018
Sizewell

Contents

LVIA Methodology	5
Visualisations and ZTV Studies	16
References	18

6542
16 October 2018
Sizewell

Version: 1.6
Version date: 16 October 2018
Comment Updated 16.10.2016

This document has been prepared and checked in accordance with ISO 9001:2008.

16 October 2018

Sizewell

LVIA Methodology

Introduction

This appendix contains additional detail regarding the assessment methodology, supplementing the information provided within the LVIA text. This appendix sets out a standard approach – specific matters in terms of the scope of assessment, study area and modifications to the standard approach for this assessment are set out within the LVIA.

The methodology has the following key stages, which are described in more detail in subsequent sections, as follows:

- **Baseline** – includes the gathering of documented information; agreement of the scope of the assessment with the EIA co-ordinator and local planning authority; site visits and initial reports to the EIA co-ordinator of issues that may need to be addressed within the design.
- **Design** – input into the design / review of initial design / layout / options and mitigation options.
- **Assessment** – includes an assessment of the landscape and visual effects of the scheme, requiring site-based work and the completion of a full report and supporting graphics.
- **Cumulative Assessment** – assesses the effects of the proposal in combination with other developments, where required.

Baseline

The baseline study establishes the planning policy context, the scope of the assessment and the key receptors. It typically includes the following key activities:

- A desk study of relevant current national and local planning policy, in respect of landscape and visual matters, for the site and surrounding areas.
- Agreement of the main study area radius with the local planning authority.
- A desk study of nationally and locally designated landscapes for the site and surrounding areas.
- A desk study of existing landscape character assessments and capacity and sensitivity studies for the site and surrounding areas.
- A desk study of historic landscape character assessments (where available) and other information sources required to gain an understanding of the contribution of heritage assets to the present-day landscape.

16 October 2018

Sizewell

- Collation and evaluation of other indicators of local landscape value such as references in landscape character studies or parish plans, tourist information, local walking & cycling guides, references in art and literature.
- The identification of valued character types, landscape elements and features which may be affected by the proposal, including rare landscape types.
- Exchanging information with other consultants working on other assessment topics for the development as required to inform the assessment.
- Draft Zone of Theoretical Visibility (ZTV) studies to assist in identifying potential viewpoints and indicate the potential visibility of the proposed development, and therefore scope of receptors likely to be affected. The methodology used in the preparation of ZTV studies is described within Appendix 4.
- The identification of and agreement upon, through consultation, the scope of assessment for cumulative effects.
- The identification of and agreement upon, through consultation, the number and location of representative and specific viewpoints within the study area.
- The identification of the range of other visual receptors (e.g. people travelling along routes, or within open access land, settlements and residential properties) within the study area.
- Site visits to become familiar with the site and surrounding landscape; verify documented baseline; and to identify viewpoints and receptors.
- Input to the design process.

The information gathered during the baseline assessment is drawn together and summarised in the baseline section of the report and reasoned judgements are made as to which receptors are likely to be significantly affected. Only these receptors are then taken forward for the detailed assessment of effects (ref. GLVIA 3rd edition, 2013, para 3.19).

Design

The design and assessment stages are necessarily iterative, with stages overlapping in parts. Details of any mitigation measures incorporated within the proposals to help reduce identified potential landscape and visual effects are set out within the LVIA.

Assessment

The assessment of effects includes further desk and site-based work, covering the following key activities:

- The preparation of a ZTV based on the finalised design for the development.

16 October 2018

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- An assessment, based on both desk study and site visits, of the sensitivity of receptors to the proposed development.
- An assessment, based on both desk study and site visits, of the magnitude and significance of effects upon the landscape character, designated and recreational landscape and the existing visual environment arising from the proposed development.
- An informed professional judgement as to whether each identified effect is positive, neutral or adverse.
- A clear description of the effects identified, with supporting information setting out the rationale for judgements.
- Identification of which effects are judged to be significant based on the significance thresholds set out within the LVIA
- The production of visualisations from a selection of the agreed viewpoints showing the anticipated view of the proposed development.

Landscape Designations

In considering the effects on designated areas, a number of factors need to be considered. The effects on the component landscape character areas/types and the effects on views from within and towards the designated area need to be understood. These effects are then considered in the light of the documented special qualities, valued elements or characteristics and the purposes of the designation in order to arrive at a judgement of the effects on the designated landscape or element.

Site

The effect of physical changes to the site are assessed in terms of the effects on the landscape fabric.

Landscape, Seascape and Townscape Character Considerations

The European Landscape Convention (2000) provides the following definition:

“Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.”

It notes in Article 2 that landscape includes *“natural, rural, urban and peri-urban areas. It includes land, inland water and marine areas”*.

An Approach to Landscape Character Assessment (Natural England, 2014) defines landscape character as:

“a distinct and recognisable pattern of elements, or characteristics, in the landscape that make one landscape different from another, rather than better or worse.”

16 October 2018

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The susceptibility of landscape character areas/types is judged based on both the attributes of the receiving environment and the characteristics of the proposed development as discussed under ‘susceptibility’ within the methodology section of the LVIA. Thus, the key characteristics of the landscape character areas/types are considered, along with scale, openness, topography; the absence of, or presence, nature and patterns of development, settlement, landcover, the contribution of heritage assets and historic landscape elements and patterns, and land uses in forming the character. The condition of the receiving landscape, i.e. the intactness of the existing character will also be relevant in determining susceptibility. The likelihood of material effects on the landscape character areas/types can be judged based on the scale and layout of the proposal and how this relates to the characteristics of the receiving landscape.

The introduction of any development into a landscape adds a new feature which can affect the ‘sense of place’ in its near vicinity, but with distance, the existing characteristics reassert themselves.

The baseline is informed by desk study of published landscape character assessments and field survey. It is specifically noted within An Approach to Landscape Character Assessment (Natural England, 2014) that:

“Our landscapes have evolved over time and they will continue to evolve – change is a constant but outcomes vary. The management of change is essential to ensure that we achieve sustainable outcomes – social, environmental and economic. Decision makers need to understand the baseline and the implications of their decisions for that baseline.”

At page 51 it describes the function of Key Characteristics in landscape assessment, as follows:

“Key characteristics are those combinations of elements which help to give an area its distinctive sense of place. If these characteristics change, or are lost, there would be significant consequences for the current character of the landscape. Key characteristics are particularly important in the development of planning and management policies. They are important for monitoring change and can provide a useful reference point against which landscape change can be assessed. They can be used as indicators to inform thinking about whether and how the landscape is changing and whether, or not, particular policies – for example - are effective and having the desired effect on landscape character.”

It follows from the above that in order to assess whether landscape character is significantly affected by a development, it should be determined how each of the key characteristics would be affected. The judgement of magnitude therefore reflects the degree to which the key characteristics and elements which form those characteristics will be altered by the proposals.

16 October 2018

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Landscape Value - Considerations

Paragraph 5.19 of GLVIA, 3rd edition states that “A review of existing landscape designations is usually the starting point in understanding landscape value, but the value attached to undesignated landscapes also needs to be carefully considered and individual elements of the landscape - such as trees, buildings or hedgerows - may also have value. All need to be considered where relevant.”

Paragraph 5.20 of GLVIA, 3rd edition indicates information which might indicate landscape value, including:

- Information about areas recognised by statute such as National Parks, Areas of Outstanding Natural Beauty;
- Information about Heritage Coasts, where relevant;
- Local planning documents for local landscape designations;
- Information on features such as Conservation Areas, listed buildings, historic or cultural sites;
- Art and literature, identifying value attached to particular areas or views; and
- Material on landscapes of local or community interest, such as local green spaces, village greens or allotments.

An assessment of landscape value is made based on the following factors outlined in Box 5.1 of GLVIA, 3rd edition: landscape quality (condition); scenic quality; rarity; representativeness; conservation interest; recreational value; perceptual aspects; and associations.

In addition to the above list, consideration is given to any evidence that indicates whether the landscape has particular value to people that would suggest that it is of greater than Community value.

Viewpoints and Visual Receptors - Considerations

A wide variety of visual receptors can reasonably be anticipated to be affected by the proposed development. Within the baseline assessment, the ZTV study and site visits are used to determine which visual receptors are likely to be significantly affected and therefore merit detailed assessment. In line with guidance (GLVIA, 3rd Edition, 2013); both representative and specific viewpoints may be identified to inform the assessment. In general, the majority of viewpoints will be representative – representing the visual receptors at the distance and direction in which they are located and of the type(s) that would be present at that location. The representative viewpoints are generally selected in locations where significant effects would be anticipated; though some may be selected outside of that zone – either to demonstrate

16 October 2018

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the reduction of effects with distance; or to specifically ensure the representation of a particularly sensitive receptor.

The types of visual receptors likely to be included with the assessment are:

- Users of walking routes or accessible landscapes including Public Rights of Way, National and Regional Trails and other long distance routes, Common Land, Open Access Land, permissive paths, land held in trust (e.g. Woodland Trust, National Trust) offering free public access, and other regularly used, permitted walking routes;
- Visitors to and residents of settlements;
- Visitors to specific valued viewpoints;
- Visitors to attractions or heritage assets for which landscape and views contribute to the experience; and
- Users of roads or identified scenic routes.

Visual receptors are grouped for assessment into areas which include all of the routes, public spaces and homes within that area. Groups are selected as follows:

- Based around settlements in order to describe effects on that community – e.g. a settlement and routes radiating from that settlement; or
- An area of open countryside encompassing a number of routes, accessible spaces and individual dwellings; or
- An area of accessible landscape and the routes within and around it e.g. a country park; and
- such that effects within a single visual receptor group are similar enough to be readily described and assessed.

With the exception of specific viewpoints, each route, settlement or location will encompass a range of possible views, which might vary from no view of the development to very clear, close views. Therefore, effects are described in such a way as to identify where views towards the development are likely to arise and what the scale, duration and extent of those views are likely to be. In some cases this will be further informed by a nearby viewpoint and in others it will be informed with reference to the ZTV, aerial photography and site visits. Each of these individual effects are then considered together in order to reach a judgement of the effects on the visual receptors along that route, or in that place.

The representative viewpoints are used as ‘samples’ on which to base judgements of the scale of effects on visual receptors. The viewpoints represent multiple visual receptors, and duration and extent are judged when assessing impacts on the visual receptors.

16 October 2018

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For specific viewpoints (key and sometimes promoted viewpoints within the landscape), duration and extent are assessed, with extent reflecting the extent to which the development affects the valued qualities of the view from the specific viewpoint.

16 October 2018
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Visual Receptor Sensitivity – Typical Examples

	High	Medium	Low
National/International	1	4	8
Local/District	2	5	8
Community	3	6	9
Limited		7	10

- 1) Visitors to valued viewpoints or routes which people might visit purely to experience the view, e.g. promoted or well-known viewpoints, routes from which views that form part of the special qualities of a designated landscape can be well appreciated; key designed views; panoramic viewpoints marked on maps.
- 2) People in locations where they are likely to pause to appreciate the view, such as from local waypoints such as benches; or at key views to/from local landmarks. Visitors to local attractions, heritage assets or public parks where views are an important contributor to the experience, or key views into/out of Conservation Areas.
- 3) People in the streets around their home, or using public rights of way, navigable waterways or accessible open space (public parks, open access land).
- 4) Users of promoted scenic rail routes.
- 5) Users of promoted scenic local road routes.
- 6) Users of cycle routes, local roads and railways.
- 7) Outdoor workers.
- 8) Users of A-roads which are nationally or locally promoted scenic routes.
- 9) Users of sports facilities such as cricket grounds and golf courses.
- 10) Users of Motorways and A-roads; shoppers at retail parks, people at their (indoor) places of work.

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Preparation and use of Visuals

The ZTVs are used to inform the field study assessment work, providing additional detail and accuracy to observations made on site. Photomontages may also be produced in order to assist readers of the assessment in visualising the proposals, but are not used in reaching judgements of effect. The preparation of the ZTVs (and visualisations where applicable) is informed by the Landscape Institute's Advice Note 01/11 – 'Photography and photomontage in landscape and visual impact assessment' and SNH 'Visual Representation of Wind Farms Best Practice Guidance' (both the 2007 and 2017 editions).

The following points should be borne in mind in respect of the ZTV study:

- Areas shown as having potential visibility may have visibility of the development obscured by local features such as trees, hedgerows, embankments or buildings.

A detailed description of the methods by which ZTVs and visualisations are prepared is included in Appendix 4.

In addition to the main visualisations, illustrative views are used as appropriate to illustrate particular points made within the assessment. These are not prepared to the same standard as they simply depict existing views, character or features rather than forming the basis for visualisations.

Cumulative Assessment

Cumulative assessment relates to the assessment of the effects of more than one development. A search area from the proposal site (typically of a similar scale to the study area) is agreed with the planning authority. For each of the identified cumulative schemes agreement is reached with the planning authority as to whether and how they should be included in the assessment.

Only operational and consented developments are considered, unless specific circumstances indicate that a development in planning should be included, with progressively decreasing emphasis placed on those which are less certain to proceed. Typically, operational and consented developments are treated as being part of the landscape and visual baseline. i.e. it is assumed that consented schemes will be built except for occasional exceptions where there is good reason to assume that they will not be constructed.

The cumulative assessment examines the same groups of landscape and visual receptors as the assessment for the main scheme, though different viewpoints may be used in order to better represent the likely range of effects arising from the combination of schemes. The assessment is informed by cumulative ZTVs as necessary, showing the extent of visual effects of the schemes in different colours to illustrate where visibility of more than one development is likely to arise. Cumulative wirelines or visualisations may also be prepared.

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In addition, the effects on users of routes through the area, from which developments may be sequentially visible as one passes through the landscape are also considered, if appropriate. This assessment is based on the desk study of ZTVs and aerial photography, and site visits to travel along the routes being assessed.

In relation to landscape and visual cumulative assessment, it is important to note the following:

- For each assessed receptor, combined cumulative effects may be the same as for the application scheme, or greater (where the influence of multiple schemes would increase effects, or where schemes in planning other than the application scheme would have the predominant effects).
- For each assessed receptor, incremental cumulative effects may be the same as for the application scheme, or reduced (where the influence of other schemes in planning would be such that were they consented and considered to be part of the baseline, the incremental change arising from the addition of the application scheme would be less).
- Subject to the distance and degree of intervening landform, vegetation and structures there may be no cumulative effects.

The way in which the assessment is described and presented is varied depending on the number and nature of scenarios which may arise. This variation is needed in order to convey to the reader the key points of each assessment. For example, the three different cumulative combinations that may arise for an assessment in which there are two existing undetermined applications each can be assessed individually. A situation in which there are 10 applications cannot reasonably be assessed in this way and the developments may need to be grouped for analysis.

Residential Amenity

Paragraph 6.17 of GLVIA, 3rd edition notes that:

“In some instances it may also be appropriate to consider private viewpoints, mainly from residential properties.... Effects of development in private property are frequently dealt with mainly through ‘residential amenity assessments’. These are separate from LVIA although visual effects assessment may sometimes be carried out as part of a residential amenity assessment, in which case this will supplement and form part of the LVIA for a project. Some of the principles set out here for dealing with visual effects may help in such assessments but there are specific requirements in residential amenity assessment”

When dealing with effects on residential properties, the outlook from a private property is essentially a private matter. The difference between that private interest and what should be protected in the public interest has been the subject of particular focus at Public Inquiries in relation to wind farm cases and the lessons learnt from Inspector’s decisions have informed how effects on views from residential properties

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influence a planning decision. This is fully described and set out in paragraphs 209-211 of the decision regarding Spring Farm Ridge wind farm (APP/Z2830/A/11/2165035 – December 2014), which sets out the approach that in considering effects on private residential amenity – whether effects are visually significant is not relevant – effects which fall below the threshold of being “*so unpleasant, overwhelming and oppressive that this would become an unattractive place to live*” (known as the Lavender Test) “*would not feature in the planning balance, irrespective of how many dwellings were so affected*”. The Inspector’s report also makes clear that this is a separate exercise to “*weighing in the balance, as a component of the character and appearance issue, the effects on the locality generally that would derive from visual effects on resident receptors*”, which is covered within the assessment of effects on visual receptors.

The Spring Farm Ridge Inspector’s decision is for a wind farm but makes it clear that “*the level of impact or threshold at which the public interest would be so engaged should be no different for wind turbines than would be the threshold applicable to other types of development.*” Wind farms are unusually tall developments with a greater chance that they could have such an effect. Most forms of development are unlikely to cause effects of such a high magnitude to render a property an unattractive place in which to live unless in very close to the property and occupying a large proportion of views.

Residential properties closest to the site are viewed on site and from aerial photography to consider whether a residential amenity assessment is required. Where such an assessment is required, it is often provided as an appendix to the LVIA.

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Visualisations and ZTV Studies

ZTV Studies

ZTV studies are prepared using the ESRI ArcGIS Viewshed routine. This creates a raster image that indicates the visibility (or not) of the points modelled. LDA Design undertake a ZTV study that is designed to include visual barriers from settlements and woodlands. If significant deviations from these assumed heights are noted during site visits, for example young or felled areas of woodland, or recent changes to built form, the features concerned will be adjusted within the model or the adoption of a digital surface model will be used to obtain actual heights for these barriers.

Details of the data used in the ZTV are presented on the ZTV drawing.

The model is also designed to take into account both the curvature of the earth and light refraction, informed by the SNH guidance. LDA Design undertake all ZTV studies with observer heights of 2m.

The ZTV analysis begins at 1m from the observation feature and will work outwards in a grid of the set resolution until it reaches the end of the terrain map for the project.

For all plan production LDA Design will produce a ZTV that has a base and overlay of the 1:50,000 Ordnance Survey Raster mapping or better. The ZTV will be reproduced at a suitable scale on an A3 template to encompass the study area.

Ground model accuracy

Depending on the project and level of detail required, different height datasets may be used. Below is listed the different data products and their specifications:

Product	Distance Between Points	Vertical RMSE Error
LiDAR	50cm – 2m	up to +/- 5cm
Photogrammetrically Derived Heights	2m – 5m	up to +/- 1.5m
Ordnance Survey OS terrain 5	5 m	up to +/- 2.5m
NextMap25 DTM	25 m	+/- 2.06m
Ordnance Survey OS terrain 50	50 m	+/- 4m

Site-specific topographical survey data may also be used where available.

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Photomontages and Photowires

Verified / verifiable photomontages are produced in seven stages. Photowires are produced using the same overall approach, but only require some of the steps outlined below.

- 1) Photography is undertaken using a digital SLR camera and 50mm equivalent lens. A tripod is used to take overlapping photographs which are joined together using an industry standard application to create a single panoramic image for each viewpoint. These are then saved at a fixed height and resolution to enable correct sizing when reproduced in the final images. The photographer also notes the GPS location of the viewpoint and takes bearings to visible landmarks whilst at the viewpoint.
- 1) Creation of a ground model and 3D mesh to illustrate that model. This is created using LiDAR point data (or occasionally other terrain datasets where required, such as site-specific topographical data or Photogrammetrically Derived Heights) and ground modelling software.
- 2) The addition of the proposed development to the 3D model. The main components of the proposed development are accurately modelled in CAD and are then inserted into the 3D model at the proposed locations and elevations.
- 3) Wireline generation – The viewpoints are added within the 3D CAD model with each observer point being inserted at 1.5m above the modelled ground plane. The location of the landmarks identified by the photographer may also be included in the model. The view from the viewpoint is then replicated using virtual cameras to create a series of single frame images, which also include bearing markers. As with the photographs, these single frame images are joined together using an industry standard application to create a single panoramic image for each viewpoint. These are then saved at a fixed height and resolution to ensure that they are the same size as the photographs.
- 4) Wireline matching – The photographs are matched to the wirelines using a combination of the visible topography, bearing markers and the landmarks that have been included in the 3D model.
- 5) For the photomontage, an industry standard 3D rendering application is used to produce a rendered 3D view of the proposed development from the viewpoint. The rendering uses materials to match the intended surface finishes of the development and lighting conditions according to the date and time of the viewpoint photograph.

The rendered development is then added to the photograph in the position identified by the wireline (using an image processing application) to ensure accuracy. The images are then layered to ensure that the development appears in front of and behind

16 October 2018

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the correct elements visible within the photograph. Where vegetation is proposed as part of the development, this is then added to the final photomontage.

References

- 1) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition, Landscape Institute and Institute of Environmental Management and Assessment, 2013.
- 2) An Approach to Landscape Character Assessment, Natural England, 2014.
- 3) An Approach to Seascape Character Assessment, Natural England, 2012
- 4) Landscape Institute Technical Information Note 05/2017 – Townscape Character Assessment, April 2018
- 5) Special Report – The State of Environmental Impact Assessment Practice in the UK, Institute of Environmental Management and Assessment, 2011
- 6) Landscape Institute Advice Note 01/11 - Photography and Photomontage in Landscape and Visual Impact Assessment, March 2011
- 7) Landscape Institute Technical Guidance Note 02/17 – Visual Representation of Development Proposals, March 2017
- 8) Visual Representation of Wind Farms Guidance, Version 2.2, Scottish Natural Heritage, February 2017
- 9) European Landscape Convention, Council of Europe, 2000.

VOLUME II:
TECHNICAL APPENDICES

7.2 Landscape Visual Impact Assessment Legislation, Policy and Guidance

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APPENDIX 7.2 LVIA LEGISLATION, POLICY AND GUIDANCE

a) National

i. The Countryside and Rights of Way Act 2000

- 1.1.1 The Countryside and Rights of Way Act 2000 (CRoW Act 2000) provides for public access on foot to certain types of land, amends the law relating to public rights of way, increases measures for the management and protection for Sites of Special Scientific Interest (SSSI) and strengthens wildlife enforcement legislation, and provides for better management of Areas of Outstanding Natural Beauty (AONB).
- 1.1.2 The Act clarifies the procedure and purpose of designating AONBs and consolidates the provisions of previous legislation. The Act also requires all relevant authorities to have regard to the purpose of conserving and enhancing the natural beauty of AONBs when performing their functions.

ii. National Planning Policy Framework

- 1.1.3 The National Planning Policy Framework (NPPF) makes clear that the purpose of planning is to help achieve sustainable development (Section 2), and that design (Section 12), and effects on the natural environment (Section 15) are important components of this.
- 1.1.4 Paragraph 11 sets out that in determining applications for development this means that developments which accord with an up-to-date development plan should be approved. Where the development plan is not fit for the purpose of determining the application, paragraph 11 directs that the permission should be granted unless *“any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies in this Framework taken as a whole”* or *“the application of policies in this Framework that protect areas or assets of particular importance provides a clear reason for refusing the development proposed”*. The areas or assets of particular importance in respect of landscape and visual matters referred to within the relevant footnote 6 are:
- Area of Outstanding Natural Beauty (AONB);
 - National Parks including the Norfolk Broads;
 - Heritage Coast.
- 1.1.5 The list also includes important and/or irreplaceable habitats, designated heritage assets, areas at risk of flooding or coastal change, and land-use designations (Green Belt, Local Green Space).
- 1.1.6 Section 11 sets out considerations in ‘Making effective use of land’ and notes in paragraph 122 that in respect of development density the considerations should

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include whether a place is well-designed and *“the desirability of maintaining an area’s prevailing character and setting ... or of promoting regeneration and change”*.

1.1.7 In Section 12 (‘Achieving well-designed places’) paragraph 127 of the NPPF indicates that decisions should ensure that (inter alia) developments:

“a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;

b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;

c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities);

d) establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit;

e) optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development (including green and other public space)...”

1.1.8 Section 15 of the NPPF (‘Conserving and enhancing the natural environment’) covers both ecological and landscape matters. Paragraph 170 requires that decisions should contribute by (inter alia):

“a) protecting and enhancing valued landscapes, ... (in a manner commensurate with their statutory status or identified quality in the development plan);

b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;

c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate; ...”

1.1.9 In respect of valued landscapes, paragraph 171 notes that planning policy should *“distinguish between the hierarchy of international, national and locally designated sites”*.

1.1.10 Paragraphs 172 and 173 require that:

“Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection

in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads. The scale and extent of development within these designated areas should be limited. Planning permission should be refused for major development other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:

a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy;

b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and

c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.

Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 172), planning policies and decisions should be consistent with the special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.”

1.1.11 Footnote 55 notes that “...whether a proposal is ‘major development’ is a matter for the decision maker, taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined”.

1.1.12 Paragraph 180 requires decisions to ensure that “...new development is appropriate for its location” including by limiting the impact of light pollution from artificial light on local amenity and intrinsically dark landscapes.

iii. Planning Practice Guidance: Natural Environment

1.1.13 This document mainly focusses on the key issues in implementing policy to protect biodiversity, but also contains a section on landscape. This section reiterates the policy set out in the NPPF, clarifying that the ‘have regard duty’ is relevant to considering development proposals that are situated outside National Parks and Areas of Outstanding Natural Beauty which might “...have an impact on the setting of, and implementation of, the statutory purposes of these protected areas” (paragraph 003). It adds that “National Parks and Areas of Outstanding Natural Beauty management plans may also be material considerations in making decisions on individual planning applications, where they raise relevant issues” (paragraph 004) and that Natural England has published advice on Heritage Coasts (paragraph 006). This guidance indicates that heritage coasts are ‘defined’ rather than designated and that their purpose is to

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- *“...conserve, protect and enhance:*
 - *The natural beauty of the coastline*
 - *Their terrestrial, coastal and marine flora and fauna*
 - *Their heritage features*
- *encourage and help the public to enjoy, understand and appreciate these areas*
- *maintain and improve the health of inshore waters affecting heritage coasts and their beaches through appropriate environmental management measures*
- *take account of the needs of agriculture, forestry and fishing and the economic and social needs of the small communities on these coasts”.*

iv. Planning Practice Guidance: Design

- 1.1.14 This guidance sets out principles in respect of the design of a development, noting in the section describing why good design matters, that:

“Achieving good design is about creating places, buildings, or spaces that work well for everyone, look good, last well, and will adapt to the needs of future generations.

Good design responds in a practical and creative way to both the function and identity of a place. It puts land, water, drainage, energy, community, economic, infrastructure and other such resources to the best possible use – over the long as well as the short term.”

- 1.1.15 In respect of the determining applications and the relationship between a proposal and the surrounding townscape, the guidance notes (Paragraph 004) that:

“Local planning authorities are required to take design into consideration and should refuse permission for development of poor design. Local planning authorities should give great weight to outstanding or innovative designs which help to raise the standard of design more generally in the area. This could include the use of innovative construction materials and techniques. Planning permission should not be refused for buildings and infrastructure that promote high levels of sustainability because of concerns about incompatibility with an existing townscape, if those concerns have been mitigated by good design...”

- 1.1.16 In respect of local character (including landscape setting), the guidance further notes (paragraph 007) that:

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“Development should seek to promote character in townscape and landscape by responding to and reinforcing locally distinctive patterns of development, local man-made and natural heritage and culture, while not preventing or discouraging appropriate innovation.

The successful integration of all forms of new development with their surrounding context is an important design objective, irrespective of whether a site lies on the urban fringe or at the heart of a town centre.

When thinking about new development the site’s land form should be taken into account. Natural features and local heritage resources can help give shape to a development and integrate it into the wider area, reinforce and sustain local distinctiveness, reduce its impact on nature and contribute to a sense of place. Views into and out of larger sites should also be carefully considered from the start of the design process.

Local building forms and details contribute to the distinctive qualities of a place. These can be successfully interpreted in new development without necessarily restricting the scope of the designer. Standard solutions rarely create a distinctive identity or make best use of a particular site. The use of local materials, building methods and details can be an important factor in enhancing local distinctiveness when used in evolutionary local design, and can also be used in more contemporary design. However, innovative design should not be discouraged.

The opportunity for high quality hard and soft landscape design that helps to successfully integrate development into the wider environment should be carefully considered from the outset, to ensure it complements the architecture of the proposals and improves the overall quality of townscape or landscape. Good landscape design can help the natural surveillance of an area, creatively help differentiate public and private space and, where appropriate, enhance security.”

v. A Green Future: Our 25 Year Plan to Improve the Environment

- 1.1.17 The 25 Year Environment Plan (the Plan) sets out the Government’s long-term approach to protecting and enhancing the environment. Amongst its 25 year goals the Plan seeks to achieve *“Enhanced beauty, heritage and engagement with the natural environment”*.
- 1.1.18 The Plan records that action will be taken on a number of fronts and identifies six key areas around which action will be focussed.
- 1.1.19 One of the goals of the Plan is to *“...conserve and enhance the beauty of our natural environment, and make sure it can be enjoyed, used by and cared for by everyone...”*. It adds that this goal will be achieved by (inter alia) *“Safeguarding and enhancing the beauty of our natural scenery and improving its environmental value while being sensitive to considerations of its heritage”*.

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- 1.1.20 Policies that are particularly relevant to the LVIA are contained in Chapter 1 (Using and managing land sustainably) and Chapter 2 (Recovering nature and enhancing the beauty of landscapes).
- 1.1.21 With regards to using and managing land sustainably, the Plan records that the Government will (inter alia) *“Embed an environmental net gain’ principle for development, including housing an infrastructure”*.
- 1.1.22 With regards to conserving and enhancing natural beauty the Plan records that the Government will (inter alia) identify opportunities for environmental enhancement in all of England’s National Character Areas to improve landscapes for people, places and nature.

b) Local

- 1.1.23 The terrestrial portion of the 2km study area is wholly within the administrative area of East Suffolk Council (ESC), which was created in April 2019 and covers the former districts Suffolk Coastal District Council (SCDC) and Waveney District Council (WDC). ESC will continue to use two Local Plans for each of the former administrative areas of Suffolk Coastal and Waveney District Councils.

i. Suffolk Coastal District Local Plan - Core Strategy and Development Management Policies – Development Plan Document

- 1.1.24 The Core Strategy and Development Management Policies - Development Plan Document sets out the vision and strategy for development in the district to 2027. This document forms part of the formal Development Plan for the district and is used in the determination of planning applications.
- 1.1.25 Chapter 3 of the Core Strategy sets out strategic policies. Policies relevant to the LVIA are presented below:
- 1.1.26 **Strategic Policy SP1 – Sustainable Development** records that the Strategy will be to (inter alia):
- “...(e) give priority to re-using previously developed land and buildings in and around built-up areas, where possible ahead of greenfield sites;*
- ...(j) conserve and enhance the areas natural historic and built environment;...”* (and)
- ...(k) maintain and enhance sense of place;...”*
- 1.1.27 **Strategic Policy SP13 – Nuclear Energy** relates specifically to the possibility of additional nuclear power stations at Sizewell and the need to consider (inter alia):
- “...(a) Proposed layout and design;...”* (and)
- “...(c) Landscape and visual character assessment including cumulative effects;...”*

1.1.28 **Strategic Policy SP14 – Biodiversity and Geodiversity** states that *“Biodiversity and geodiversity will be protected and enhanced using a framework that is based on a network of:*

- *“Designated sites;*
- *Wildlife corridors and links;*
- *The rivers, estuaries and coast;*
- *Identified habitats and geodiversity features;*
- *Landscape character areas; and*
- *Protected species.”*

1.1.29 **Strategic Policy SP15 – Landscape and Townscape** states

“The policy of the Council will be to protect and enhance the various landscape character areas within the district either through opportunities linked to development or through other strategies.”

1.1.30 It adds

“In addition to the protected landscape of the AONB, the valleys and tributaries of the Rivers Alde, Blyth, Deben, Fynn, Hundred, Mill, Minsmere, Ore, Orwell and Yox, and the designated Parks and Gardens of Historic or Landscape Interest are considered to be particularly significant.

Many of the towns and villages in the district are of distinctive historical and architectural value, as well as landscape value and character, and the Council will seek to enhance and preserve these attributes and the quality of life in the generality of urban areas.”

1.1.31 Strategic Policy SP15 does not specially mention Special Landscape Areas (a remaining Saved Policy); however, the preamble (paragraph 3.154) highlights their importance at a county scale.

1.1.32 Chapter 5 of the Core Strategy sets out a suite of development management policies.

1.1.33 Development Management **Policy DM21 – Design: Aesthetics** states

“Proposals that comprise poor visual design and layout, or otherwise seriously detract from the character of their surroundings will not be permitted.”

It adds that development will only be permitted where specific criteria are met, including (inter alia):

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“(a) proposals should relate well to the scale and character of their surroundings particularly in terms of their siting, height, massing and form;...

(d) in order for extensions to existing buildings to be acceptable, particularly on those that are considered to be architecturally and historically important (including vernacular architecture) and those located in sensitive locations, the extension shall be visually ‘recessive’ and its size and design shall be such that the original building will remain the more dominant feature on the site

(e) layouts should incorporate and protect existing site features of landscape, ecological, heritage or amenity value as well as enhance such features e.g. habitat creation

(f) attention must be given to the form, scale, use, and landscape of the spaces between buildings and the boundary treatment of individual sites, particularly on the edge of settlements.”

1.1.34 Development Management Policy **DM26 – Lighting** states

“The District Council will seek to minimise light pollution. Applications for development requiring or likely to require external lighting should include details of lighting schemes. This should include position, height, aiming points, lighting levels and a polar luminance diagram. Applicants will need to satisfy the District Council that:

(a) The proposed lighting scheme is the minimum needed for security, working purposes, recreational or other use of the land;

(b) It is designed so as to minimise pollution from glare and light spillage, particularly to residential and commercial areas, areas of nature conservation importance, and areas whose open and landscape qualities would be affected; and

(c) There will be no glare or light spillage onto highways which could dazzle, distract or disorientate road users using them.”

1.1.35 It adds

“In order to prevent unnecessary intrusion into the countryside, or the effect on residential amenity, the District Council may seek to control the days and times of use of lighting (excluding street lighting).”

i. Suffolk Coastal District Council Site Allocations and Area Specific Policies – Development Plan Document

1.1.36 The Site Allocations and Area Specific Policies document was adopted in January 2017 and forms part of the Suffolk Coastal Development Plan. It covers the majority of Suffolk Coastal District excluding the Felixstowe Peninsula and a number of parishes where neighbourhood plans are being prepared. It identifies

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sites for different types of development, defines the boundaries of built up areas and other policy areas and areas to be protected from development, and identifies local infrastructure requirements. Leiston parish is covered by a Neighbourhood Plan and is therefore not included within the document.

1.1.37 Policies relevant to the LVIA are summarised below:

1.1.38 **Policy SSP37 – Parks and Gardens of Historic or Landscape Interest** identifies a number of historic parklands in addition to the six in the District that are included in the National Register of Parks and Gardens of Special Historic Interest.

1.1.39 The policy encourages “...*the preservation and or enhancement of these parks and gardens of historic interest and their surroundings.*” It states that

“Applications for planning permission will be permitted where the development proposal will not have a materially adverse impact on the character, features or immediate setting of the delineated park or garden and which have due regard to the additional advice and guidance in Supplementary Planning Guidance SPG6 (as updated).”

1.1.40 **Policy SSP38 – Special Landscape Areas** applies to those areas within the Suffolk “...*with special landscape attributes which are particularly vulnerable to change*”. They include some river valleys which still possess traditional grazing meadows and marshes with their hedgerows, dykes and associated flora and fauna and Historic Parklands” (Paragraph 7.20).

1.1.41 The policy states

“Development will not be permitted in these areas where it would have a material adverse impact on the qualities of the landscape that make it special.”

ii. Suffolk Coastal Local Plan (Remaining Saved Policies)

1.1.42 The Suffolk Coastal Local Plan was adopted in 1994 and subject to a first alteration which was adopted in 2001. A second alteration came into effect on 31 March 2006.

1.1.43 A small number of policies from the Suffolk Coastal Local Plan (incorporating the First and Second Alterations) remain part of the Development Plan for Suffolk Coastal District. These should be read alongside the other Development Plan documents.

1.1.44 One saved policy is of relevance to the LVIA:

1.1.45 **Policy AP122 Sizewell Gap** applies to the area illustrated on the Proposals Map (July 2017) that includes Sizewell village, car park, café and beach. It states:

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“The District Council will seek to improve and enhance the appearance of the Sizewell Gap area, as shown on the Proposals Map, for the benefit of residents and tourists”.

iii. Suffolk Coastal Local Plan Final Draft Plan

- 1.1.46 The Final Draft Local Plan (published in January 2019 for a period of 6 weeks up to 25 February 2019 to receive representations), covers the period to 2036. It contains planning policies and site allocations which will be used to determine planning applications in the area.
- 1.1.47 **Policy SCLP3.4: Proposals for Major Energy Infrastructure Projects** records that (inter alia) *“Proposals for Major Infrastructure Projects across the District and the need to mitigate the impacts arising from these will be considered against the following policy requirements:*
- “...f) Requirement for robust assessment of the potential impacts on the Suffolk Coast and Heaths Area of Outstanding Natural Beauty;...”*
- 1.1.48 Other policies of particular relevance to the LVIA are contained in Section 10 (Natural Environment) and 11 (Built and Historic Environment).
- 1.1.49 **Policy SCLP10.3: Environmental Quality** records that *“Development proposals will be expected to protect the quality of the environment and to minimise and, where possible, reduce all forms of pollution and contamination”.* It adds that *“Development proposals will be considered in relation to impacts on (inter alia); e) Light pollution;...”* and that *“Proposals should seek to secure improvements in relation to the above where possible”.*
- 1.1.50 **Policy SCLP10.4: Landscape Character** is presented in full below:
- “Proposals for development should be informed by, and sympathetic to, the special qualities and features as described in the Suffolk Coastal Landscape Character Assessment (2018), the Settlement Sensitivity Assessment (2018), or successor and updated landscape evidence.*
- Development proposals will be expected to demonstrate their location, scale, form, design and materials will protect and enhance:*
- a) The special qualities and features of the area;*
 - b) The visual relationship and environment around settlements and their landscape settings;*
 - c) Distinctive landscape elements including but not limited to watercourses, commons, woodland trees, hedgerows and field boundaries, and their function as ecological corridors;*
 - d) Visually sensitive skylines, seascapes, river valleys and significant views towards key landscapes and cultural features; and*

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e) *The growing network of green infrastructure supporting health, wellbeing and social interaction.*

Development will not be permitted where it will have a significant adverse impact on rural river valleys, historic park and gardens, coastal, estuary, heathland and other very sensitive landscapes. Conserving and enhancing the landscape and scenic beauty of the AONB is of particular importance. Proposals for development will be required to secure the preservation and appropriate restoration or enhancement of natural, historic or man made features across the District as identified in the Landscape Character Assessment, Settlement Sensitivity Assessment and successor landscape evidence.

Proposals should include measures that enable a scheme to be well integrated into the landscape and enhance connectivity to the surrounding green infrastructure and Public Rights of Way network. Development proposals which have the potential to impact upon the AONB or other sensitive landscapes should be informed by landscape appraisal, landscape and visual impact assessment and landscape mitigation.

Proposals for development should protect and enhance the tranquillity and dark skies across the District. Exterior lighting in development should be appropriate and sensitive to protecting the intrinsic darkness of rural and tranquil estuary, heathland and river valley landscape character.

Neighbourhood Plans may include local policies related to protecting and enhancing landscape character and protecting and enhancing tranquillity and dark skies.”

1.1.51 **Policy SCLP11.1: Design Quality** records that *“The Council will support locally distinctive and high quality design that clearly demonstrates an understanding of the key features of local character and seeks to enhance these features through innovative and creative means.*

1.1.52 It adds that *“In doing so, permission will be granted where proposals: (inter alia)*

...b) Demonstrate a clear understanding of the character of the built, historic and natural environment and use this understanding to complement local character and distinctiveness through both robust evidence, informed sources and site specific context and analysis;

c) Respond to local context and the form of surrounding buildings in relation to the following criteria:

i. the overall scale and character should clearly demonstrate consideration of the component parts of the buildings and the development as a whole in relation to its surroundings;

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ii. the layout should fit in well with the existing neighbourhood layout and respond to the ways people and vehicles move around both internal and external to existing and proposed buildings;

iii. the height and massing of developments should be well related to that of their surroundings;

iv. the relationship between buildings and spaces and the wider street scene or townscape; and

v. by making use of high quality materials appropriate to the local context;

d) Take account of any important landscape or topographical features and retain and/or enhance existing landscaping and natural and semi-natural features on site;...

....i) Include hard and soft landscaping schemes to aid the integration of the development into its surroundings;...".

iv. Leiston Neighbourhood Plan 2015-2029

1.1.53 The Site lies within the Leiston Neighbourhood Plan Boundary and the physical limits boundary of Leiston town lies within the study area for the LVIA.

1.1.54 The Leiston Neighbourhood Plan was prepared by Leiston Town Council following extensive consultation with the local community and sets out its vision for development to 2029. The plan was formally 'made' by Suffolk Coastal District Council in March 2017 and now forms part of the Local Development Plan for the District.

1.1.55 None of the policies in the Neighbourhood Plan are considered relevant to the LVIA, however Paragraph 2.8 records that

"EDF Energy aims to build a new power station with two reactors (Sizewell C) located on land next to the current Sizewell B station. At the present time this has not been given approval to go ahead so the Neighbourhood Plan is not in a position to fully understand its land use impacts. In addition, nuclear power matters are not ones that the Neighbourhood Plan can deal with in its policies although clearly the decision over whether Sizewell C does proceed will influence the future of the parish."

c) Guidance

i. Suffolk Coast and Heaths Area of Outstanding Natural Beauty Management Plan 2018 -2023

1.1.56 The purpose of the Suffolk Coast and Heaths AONB Management Plan 2018 - 2023 is to fulfil the statutory duty placed on local authorities outlined in Section 89 of the Countryside and Rights of Way Act (2000). It highlights that relevant

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authorities will pay regard to the purposes of the AONB and provides the framework for the coordination of action from partnership organisations and others whose activities impact upon the AONB.

- 1.1.57 Specific reference is made in Section 1.5 of the Management Plan to a separate document that defines the natural beauty and special qualities of the Suffolk Coast and Heaths AONB (see below).
- 1.1.58 Section 3 sets out a Vision Statement for the AONB, and refers to the following indicators in 2038:
- i) A high-quality landscape and seascape, where its natural beauty and special qualities are conserved and enhanced*
 - ii) Local communities are passionately and actively engaged with their environment*
 - iii) A thriving economy: a landscape of opportunity*
 - iv) High quality landscapes and associated natural and heritage features encourage a wide cross section of society to enjoy the AONB*
 - v) Tranquillity is retained and undesirable intrusion prevented”.*
- 1.1.59 Section 3 also sets out a ‘Vision for the Key Landscape Areas’ within the AONB, summarised under the following headings:
- i) An outstanding lowland coast managed for people and wildlife*
 - ii) The estuaries retain their character and special qualities for both people and wildlife*
 - iii) The Sandlings heaths have increased in size and forest areas have diversified*
 - iv) Farming remains economically viable while enhancing biodiversity and landscape character”.*
- 1.1.60 Section 4 sets out the Management Plan Themes and Objectives, subdivided into landscape; coast and estuaries; land use and wildlife; enjoying the area; and working together.
- 1.1.61 Under the Planning sub-section of Section 4.4 (Land Use and Wildlife), the management plan records
- “The Suffolk Coast is being promoted by the local authorities as an Energy Coast, with proposals for a new nuclear build at Sizewell, offshore wind farms and electricity interconnectors linking the UK with mainland Europe. These developments will bring national benefits but need to be mindful of the nationally designated landscapes, and the*

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concerns of local residents and existing businesses, many of which rely on the outstanding landscapes in which they operate.

Such major developments will impact upon the AONB and development proposals should be explicit in setting out the impacts of the developments. Once national or local decisions on major development have been made, the AONB Partnership will work constructively with developers to reduce and mitigate adverse impacts, on a range of natural beauty indicators.”

1.1.62 It adds that

“Mitigation plans should also be put forward to avoid or, if that is not possible, to minimise adverse impacts and residual effects within the AONB. This should be achieved through appropriate landscape and amenity enhancements that are aligned to this Management Plan. Where the unavoidable adverse impacts are significant this may well require an ambitious off-site mitigation package, in addition to any on-site works. Full landscape and visual impact assessment will be a fundamental requirement of such major developments.”

1.1.63 It also states

“Where existing development, be that housing or business, is expanded the impacts of incremental developments need to be considered against the purposes of the AONB. This could include negative impacts on tranquillity, such as increased traffic movements, lighting etc and need to be judged against the cumulative impacts on the designated landscapes. A similar impact is possible from developments within the setting of the AONB.

1.1.64 Section 5 presents the objectives of the Management Plan. Of particular relevance to the LVIA are the following objectives:

“Landscape Objectives

L1: The landscape of the AONB is conserved and enhanced;

L2: National and local plan policies recognise the need to conserve and enhance the designated landscape;

L3: Features that contribute to the natural beauty and special qualities of the AONB are conserved and enhanced;

L4: Statutory bodies, AONB partnership organisations, stakeholders and other organisations pay regard to the purposes of the AONB.”

“Land Use and Wildlife Objectives

LUW1: The AONB landscape and the factors contributing to its natural beauty and special qualities are conserved and better understood;

LUW2: Features that detract from the AONB's natural beauty are, where possible, removed;

LUW4: Development decisions have regard to the purposes of the AONB and scenic beauty is given great weight in the determination process;

LUW5: Major infrastructure projects avoid, mitigate and offset negative impacts on the natural beauty and special qualities of the AONB;

ii. Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB) Natural Beauty and Special Quality Indicators.

- 1.1.65 This document sets out the Natural Beauty and Special Qualities of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB). The document has been developed by EDF Energy, as part of their preparatory work for the proposed Sizewell project in consultation and agreement with the AONB Partnership, Suffolk Coastal District Council and Suffolk County Council.
- 1.1.66 The Suffolk Coast and Heaths Area of Outstanding Natural Beauty Natural Beauty and Special Qualities Indicators document is presented in full in **ES Volume II Appendix 7.3**.

iii. Suffolk Coast and Heaths Area of Outstanding Natural Beauty Position Statement-Sizewell C Design Principles: The Local Perspective

- 1.1.67 Suffolk County Council and Suffolk Coastal District Council in collaboration and discussion with National Trust, RSPB, Suffolk Wildlife Trust and the Suffolk Coast & Heaths AONB have set out a series of design principles specific for the Sizewell C project. The focus is on design and delivery of the nuclear power station itself within the AONB. However, the design principles are equally applicable to associated development within the wider landscape.
- 1.1.68 Design Principle 8 is of particular relevance. It records

"Landscaping to minimise the visual intrusion, and enhance local landscape character and biodiversity must be considered hand-in-hand with building design. The landscape and visual impacts, as set out in the Appraisal of Sustainability (accompanying NPS EN-6), will be such that offsite compensatory landscape and amenity enhancements to the wider area (AONB landscapes and beyond) will be required".

iv. Suffolk Coast and Heaths AONB Position Statement-Obtrusive Lighting in the Suffolk Coast and Heaths Area of Outstanding Natural Beauty

- 1.1.69 The position of the of the AONB Partnership is recorded as follows:

"It is considered by the AONB Partnership that exterior lighting proposed as part of any development, within the AONB or where it may impact upon its setting or lighting within the setting impacts upon the AONB, it should be kept to the minimum required and only appropriate

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to its purpose, so as to protect the area's natural beauty and special qualities.

Proposals for exterior lighting should follow good practice as set out in: Guidance notes for the reduction of light pollution produced by the Institute of Lighting Engineers. Development proposals should demonstrate that there is not a significant adverse impact, individually or cumulatively, on the character of the area (including its natural beauty and special qualities), the visibility of the night sky, wildlife, residents or those enjoying the area."

v. Suffolk Coast and Heaths Area of Outstanding Natural Beauty Guidance on the selection and use of colour in development

- 1.1.70 The purpose of this document is to provide direction and guidance on the selection and use of colour for building development within the Suffolk Coast and Heaths AONB, which includes industrial premises and office buildings, along with infrastructure development including associated with power generation.
- 1.1.71 Part two of the guidance sets out the principles of exterior colour design. It records that colour guidance is "...aimed at integrating new buildings into the landscape in a way that benefits both the landscape and the built form." It adds that this can "...range from effectively camouflaging or minimizing the visual appearance of a utilitarian building to emphasizing the specific qualities of a place through the architecture, expressed in colour, form and massing". It adds that:
- "Good colour choices depend upon a good understanding of the proposed development in relation to its landscape setting".*
- 1.1.72 A checklist is also provided to give an indication of the issues involved.
- 1.1.73 For each of the simplified landscape character types in the Suffolk Coast and Heaths AONB, the guidance presents a summary of the separate survey document, a 'developed palette' and 'colourways'. The developed palette presents a choice of colours and how it can be applied. The colourways show how colours can be put together.
- 1.1.74 The site is predominantly within the Estate Sandlands, Woods and Heath simplified landscape character type, albeit in the immediate context of the existing Sizewell power stations which exert a strong influence locally.

vi. Suffolk Landscape Character Assessment

- 1.1.75 In addition to presenting a description of current landscape character, guidance has also been published for each of the landscape character types (LCTs) identified in the county study. The guidance presents a description of landscape sensitivity and key forces for change, along with guidelines for development management addressing several types of development and landscape change. Furthermore, land management guidelines are also presented.

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- 1.1.76 The site is located primarily within the Estate Sandlands LCT. There are no specific development management guidelines for new infrastructure development. However, land management guidelines are relevant to informing the design of new planting, and in particular the restoration, maintenance and enhancement of “...*the network of tree belts and pattern of small plantations...*”.
- 1.1.77 Areas of the site are also located within (and adjacent to) the Coastal Levels LCT. Large-scale infrastructure projects (including Sizewell) are referenced as a key force for change. Development management includes reference to the construction of new buildings and changes of land use having the potential to have adverse effects on the setting of this landscape. It adds that the “...*highest standards of design and effective mitigation strategies should be applied to minimise the detrimental impact on both the visual amenity and landscape character of the Coastal Levels*”. It adds that
- “Construction of buildings that project above the skyline should be avoided if at all possible, while repositioning the proposal or adding a planting scheme behind the building can be partially successful. However, reducing the height of the development may also be required and should be considered even if this entails significant level changes. Even if it does not puncture the skyline the majority of new building is likely to be visible from the coastal levels. Therefore, construction related to existing clusters and the use of sympathetic and unobtrusive materials is always to be preferred.”*
- 1.1.78 Specific reference is also made to large scale infrastructure projects. It records (in full):
- “Very large-scale infrastructure projects that have an overriding public interest may take place in, or adjacent to, this landscape. However, these will require comprehensive management and long-term planning to minimise the landscape and visual impact during both the construction and operational phases of the project.*
- Although large-scale construction will cause a significant visual change, this landscape together with the associated Saltmarsh and Intertidal Flats and the beach (Coastal Dunes and Shingle Ridges), have some capacity to accommodate large-scale structures. This is because of their open and simple nature. However, it is important to minimise the impact of lighting and associated small-scale clutter as this will detract significantly from the visual and experiential qualities of this landscape, as well as the special character of the AONB.”*
- 1.1.79 Land management guidelines include the restoration and retention of the pattern of meadows divided by ditches and dykes, and supporting the appropriate management of woodlands, and the maintenance of the appropriate balance of grassland and woodland, noting that “*While wet woodland is an important part of the habitat mix in this landscape excessive creation of plantation woodland should be avoided.*”

vii. Suffolk Coastal Landscape Character Assessment

- 1.1.80 This assessment describes the character of thirty-seven landscape character areas (LCAs) in the district. Each LCA is described in terms of its location, constituent landscape types (referring to the Suffolk County typology), overall character, special qualities and features and condition as well as strategy objectives. These descriptions aim to provide a context and improved evidence base to inform planning and management decisions.
- 1.1.81 The site is within LCA D3 (Minsmere and Sizewell Coast). Strategy Objectives are as follows:

“Protect

- *Protect the unspoilt character of much of this coastline from intrusive major infrastructure development which may penetrate areas currently devoid of such influences.*

Manage

- *Manage public access and activities in order to minimise surface disturbance, particularly along the coastal shingle beach/ridge.*

Plan

- *Plan for the further improvement of drained marshes and the restoration of areas to saltmarsh and freshwater habitats.*
- *Plan for the regular removal of inorganic litter from the strandline through community action and involvement.”*

viii. Special Landscape Areas Paper.

- 1.1.82 The Special Landscape Quality Indicators (for areas that fall within the non-statutory SLA designation within Suffolk Coastal District) have been developed in consultation and agreement with the Suffolk Coast and Heaths AONB Partnership, Suffolk Coastal District Council and Suffolk County Council. The Special Landscape Areas Paper is presented in full in **ES Volume II Appendix 7.4.**

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VOLUME II:
TECHNICAL APPENDICES

7.3 Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB), Natural Beauty and Special Qualities Indicators

LDĀ DESIGN

Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB)

Natural Beauty and Special Qualities Indicators

VI.8

Version Date: 21 November 2016

1.0 Introduction

Discussions have been held between the Suffolk Coast and Heaths AONB Partnership, Suffolk County Council, Suffolk Coastal District Council and EDF Energy with the purpose of establishing what constitutes the natural beauty and special qualities of the Suffolk Coast and Heaths AONB.

The findings of these discussions are contained in the following tables. The Natural Beauty and Special Qualities Indicators described cover the whole of the AONB, and not just the Sizewell site and its immediate hinterland.

This document sets out the Natural Beauty and Special Qualities of the Suffolk Coast and Heaths Area of Outstanding Natural Beauty (AONB). The document has been developed by EDF Energy, as part of their preparatory work for the proposed Sizewell project in consultation and agreement with the AONB Partnership, Suffolk Coastal District Council and Suffolk County Council.

It follows a rigorous criteria based approach, building on the existing Natural England process for the designation of protected landscapes. It forms an important part of the baseline to help inform the design of the proposed development and against which to judge the effects of the proposed development on the protected landscape and its special qualities, but clearly will be of significant wider benefit to the AONB Partnership in articulating what is characteristic and special about this nationally important landscape including its relationship to adjacent offshore areas.

2.0 Natural Beauty Indicators

The Natural Beauty Indicators for the Suffolk Coast and Heaths AONB presented below are structured to follow Natural England’s guidance for assessing landscapes for designation as National Park or Area of Outstanding Natural Beauty in England¹:

Factor	Example Sub-Factor	Example Indicator	Suffolk Coast and Heaths AONB Indicator
Landscape quality	Intactness of the landscape in visual, functional and ecological perspectives	Characteristic natural and man-made elements are well represented throughout	<p>Close-knit interrelationship of semi-natural and cultural landscapes (notably sea, coast, estuaries, reedbeds, Sandlings heath, forest, farmland and market towns) and built heritage features (such as Martello towers, pill boxes, river walls), creating a juxtaposition of elements in a relatively small area.</p> <p>The AONB contains important areas of heath and acid grassland, and it supports a high number of protected species populations. As such it has importance in a national context for biodiversity.</p>
	The condition of the landscape’s features and elements	Landscape elements are in good condition	Strong overall character, albeit that the evolving nature of intensively farmed arable land with agricultural fleece/polythene and outdoor pig rearing can divide opinion on landscape condition in visually sensitive locations such as on valley sides.
	The influence of incongruous features or elements (whether man-made or natural) on the perceived natural beauty of the area	Incongruous elements are not present to a significant degree, are not visually intrusive, have only localised influence or are temporary in nature	<p>A small number of large scale and long established elements on the coast of the AONB divide opinion, being regarded by some as incongruous features and by others as enigmatic; for example the complex military site at Orford Ness. The power stations at Sizewell also divide opinion in this way, however in many views, particularly of the B station, the apparent uncluttered simple appearance and outline as well as the lack of visible human activity, partially mitigate the adverse visual impacts.</p> <p>Offshore wind turbines at Greater Gabbard, Galloper and the more distant London Array are visible from some stretches of the coastline. These create a cluttered horizon and, like the large scale elements onshore, also divide opinion.</p>
Scenic quality	A distinctive sense of place	Landscape character lends a clear and recognisable sense of place	Unique character defined by semi-natural and cultural landscapes (notably sea, coast, estuaries, reedbeds, Sandlings heath, forest, farmland and villages) and built heritage features (such as Martello towers, pill boxes, river walls), creating a juxtaposition elements in a relatively small area.
	Striking landform	Landform shows a strong sense of scale or contrast	<p>Sea cliffs and shingle beaches contrasting to flat and gently rolling Sandlings heaths and farmland.</p> <p>Extensive shingle beaches and shallow bays provide opportunities for long distance and panoramic views including out to sea and along the Heritage Coast. Views to coastal landform also possible from locations offshore.</p>

		Landscape displays a 'rhythm' dictated by a series of east-west rivers and estuaries, and the interfluves that lie between them.
	There are striking landform types or coastal configurations	Coastal cliffs, shingle spits, estuaries and beaches are striking landform features.
Visual interest in patterns of land cover	Land cover and vegetation types form an appealing pattern or composition in relation to each other and/or to landform which may be appreciated from either a vantage point or as one travels through a landscape	<p>Varied habitats and land cover in intricate mosaic corresponding to natural geography (landform, geology, soils & climate) and displaying seasonal differences, either as a result of natural processes or past and current farming and land management regimes.</p> <p>Elevated vantage points provide impressive views over low lying coastal marshes, estuaries, beaches and expansive long distance views out to sea. Views to the coastline from out at sea are also noted.</p>
Appeal to the senses	Strong aesthetic qualities, reflecting factors such as scale and form, degree of openness or enclosure, colours and textures, simplicity or diversity, and ephemeral or seasonal interest	<p>Close-knit interrelationship of constituent features creates a juxtaposition of colours and textures (such as coniferous forests, reedbeds, intertidal mud flats and heathland, sand dunes and shingle beaches) that is further enhanced by seasonal changes.</p> <p>Strong aesthetic, spatial and emotional experiences - for example in the contrast between open and exposed areas on the coast, seaward or within estuaries with more traditional enclosed farmland areas.</p>
	Memorable or unusual views and eye-catching features or landmarks	Large open vistas across heaths and along the coast, out to sea and from sea to the coastline. Landmarks include historic structures such as medieval churches, Martello towers and lighthouses, the House in the Clouds (Thorpeness) and Snape Maltings, the riverside at Woodbridge with iconic Tide Mill, along with more modern structures including Sizewell A and B and former military site at Orford Ness.
	Characteristic cognitive and sensory stimuli (e.g. sounds, quality of light, characteristic smells, characteristics of the weather)	Sensory stimuli enhanced by quality of light/space (the big 'Suffolk skies'), areas with dark skies and sound (e.g. bird calls, curlews on heath and geese on estuaries, the wind through reeds in estuaries, waves on shingle).

Relative wildness	A sense of remoteness	Relatively few roads or other transport routes	Absence of major coastal road or rail route, due to estuaries, and intermittent 'soft edged', often lightly trafficked access routes across the AONB to the coastline from main routes inland, has contributed to the relatively undeveloped character of the Suffolk coast.
		Distant from or perceived as distant from significant habitation	Pockets of relative wildness associated with coast, estuary and forests in this largely farmed and settled landscape.
	A relative lack of human influence	Extensive areas of semi-natural vegetation	Semi-natural habitats evident, notably on the Sandlings heaths, marshes, reedbeds, estuaries and along the coastline.
		Uninterrupted tracts of land with few built features and no overt industrial or urban influences	Largely undeveloped coastline and offshore areas and areas of semi-natural habitat including Sandlings heath, forests, reedbeds, estuaries and marshland. Landscape interspersed with isolated villages, and built heritage assets such as Martello towers, pill boxes, river walls that contribute to character. A small number of large scale and industrial elements on the coast of the AONB are long established, notably Sizewell A and B and the former military site at Orford Ness, whilst offshore wind turbines at Greater Gabbard, Galloper and the more distant London Array are visible from stretches of the coastline.
	A sense of openness and exposure	Open, exposed to the elements and expansive in character	Big 'Suffolk skies' and expansive views offshore emphasise sense of openness and exposure on open and exposed coastline and on the Sandlings heaths.
	A sense of enclosure and isolation	Sense of enclosure provided by (e.g.) woodland, landform that offers a feeling of isolation	Forestry plantations create sense of enclosure and isolation contrasting to open and more exposed areas along the coast and on the Sandlings heaths.
A sense of the passing of time and a return to nature	Absence or apparent absence of active human intervention	Significant areas of semi natural landscape and seascape notably along the coastline, offshore and within undeveloped estuaries where there is little evidence of apparent human activity despite the sea walls and coastal marshes.	
Relative tranquillity	Contributors to tranquillity	Presence and / or perceptions of natural landscape, birdsong, peace and quiet, natural-looking woodland, stars	Areas of semi natural habitat, where there is a general absence of development and apparent human activity, contribute to a sense of relative tranquillity. Further enhanced by sounds (bird calls, the wind through reeds in estuaries, waves on shingle) and relatively dark skies.

		at night, stream, sea, natural sounds and similar influences	
	Detractors from tranquillity	Presence and/or perceptions of traffic noise, large numbers of people, urban development, overhead light pollution, low flying aircraft, power lines and similar influences	Some local detractors from tranquillity include the seasonal influx of visitors to coastal towns, low flying aircraft noise and urban development on fringes of the AONB.
Natural heritage features	Geological and geomorphological features	Visible expression of geology in distinctive sense of place and other aspects of scenic quality	Boundary of the AONB is broadly geological marking the border between the inland boulder clay and the coastal fringe. Visible and striking expressions of geology and sedimentation on faces of crumbling coastal cliffs. Use of flint, local crag and Aldeburgh brick for building are indicators of local geology.
		Presence of striking or memorable geomorphological features	Low crumbling cliffs and steep banks of pebbles on shingle beaches contribute to a landscape of constant change. Striking and memorable geomorphological features include the vast cusped foreland shingle spit of Orford Ness and river estuaries such as the estuary of the River Alde.
	Wildlife and habitats	Presence of wildlife and / or habitats that make a particular contribution to distinctive sense of place and other aspects of scenic quality	Varied, nationally and internationally protected sites such as SSSI, SPA and SAC, semi natural habitats designated for their nature conservation interest and range of species supported (including shingle beaches, intertidal and offshore areas, reedbeds, grazing marshes and Sandlings heaths). Intricate mosaic, highly dynamic and sensitive regimes (due to periodic flooding) along with rapid transitions add to biodiversity interest, distinctive landscape character and scenic quality.
		Presence of individual species that contribute to sense of place, relative wildness or tranquillity	Varied protected species across major habitat types, for example breeding and wading birds in estuaries and reedbeds; rare communities of salt tolerant plants on the coast; and birds and invertebrates on the Sandlings heaths.
Cultural heritage	Built environment, archaeology and designed landscapes	Presence of settlements, buildings or other structures that make a	Villages and small towns, particularly at 'end of the road' coastal and estuary locations, such as Pin Mill, Ramsolt and Walberswick and built heritage assets such as military structures (e.g. Martello towers, castle at Orford and pillboxes); Low Countries influence on

		particular contribution to distinctive sense of place and other aspects of scenic quality	architecture (as at Aldeburgh); and use of soft hued red brick and pink render with thatch or pantiles contribute to sense of place.
		Presence of visible archaeological remains, parkland or designed landscapes that provide striking features in the landscape	Archaeological and historic sites and features include prehistoric and later burial monuments (including the Anglo-Saxon burial ground at Sutton Hoo); early medieval churches (many of which pre-date the Domesday survey); historic field and settlement patterns; and evidence of land reclamation dating back to the 12 th century. Distinctive vernacular use of flint, clunch and brick. Designed landscapes are important notably along southern estuaries and in the northern part of the AONB, including Thorpeness Model Village.
	Historic influence on the landscape	Visible presence of historic landscape types or specific landscape elements or features that provide evidence of time depth or historic influence on the landscape	Field patterns reflect process of land management and enclosure stretching back many centuries. Evidence of reclamation of former intertidal areas to form freshwater grazing marsh dating back to the 12 th century. Prehistoric and later burial monuments (such as at Sutton Hoo), early medieval churches/religious houses and castles. There is also more recent military and infrastructure elements particularly on the coast (e.g. Martello towers, former military installations at Orford Ness), WW11 airfields, radar installations and pillboxes that form part of the long history of <i>"Suffolk's Defended Shore"</i> . More latterly the Sizewell nuclear complex highlights evidence of time depth across the landscape. Both the nuclear complex and the nearby infrastructure associated with offshore energy generation are part of a developing story of the Suffolk's Energy Coast. There are often strong associations between these features and areas of more remote coastal landscape character. Some of the military structures by reason of their scale, design, and cultural importance have now become an accepted part of the landscape, such as the Martello towers or the pagodas. Whereas other infrastructure, such as electricity pylons and the power stations are still cited by some as visual detractors in the landscape, despite the test of time.
		Perceptions of a harmonious balance between natural and cultural elements in the landscape	Rural landscape and smaller settlements (notably using vernacular building materials) display a harmonious balance between natural and cultural elements in the landscape, some of which date back several hundreds of years. Association between reedbeds and thatched roofs and local crag and flint where used as building materials.

		that stretch back over time	History of river use with Thames barges indicating links to past maritime heritage, and contemporary recreational use of the estuaries and coast, with many boatyards and in-river moorings.
	Characteristic land management practices	Existence of characteristic land management practices, industries or crafts which contribute to natural beauty	Landscape character and diversity of habitat types dependent on wide range of land management practices, several of which date back many centuries. Examples include pasturing; grazing on coastal marshes; forestry; extensive grazing to maintain heathland; reed cutting; and ditch/marshland and hydrological management. Small scale fishing industry results in boats, nets, pots and storage buildings on some stretches of coastline.
	Associations with written descriptions	Availability of descriptions of the landscape in notable literature, topographical writings or guide books, or significant literature inspired by the landscape.	Associations with numerous writers including George Crabbe, (e.g. the poem 'The Borough', 1810), P.D. James and Arthur Ransome.
	Associations with artistic representations	Depiction of the landscape in art, other art forms such as photography or film, through language or folklore, or in inspiring related music	Landscape, towns, coastal areas and the sea captured in, or formed the inspiration for, the works of various artists and composers including J.M.W. Turner (e.g. 'Aldborough, Suffolk' c.1826) and Benjamin Britten (e.g. the opera 'Peter Grimes' c.1945). Annual arts and music festival established in 1948, by Benjamin Britten along with singer Peter Pears and writer Eric Crozier.
	Associations of the landscape with people, places or events	Evidence that the landscape has associations with notable people or events, cultural traditions or beliefs	Wide range of 'stories' describing historical events or activities relate to the landscape and features within the landscape, including stories related to smuggling; the creation of Minsmere; and the loss of Dunwich to the sea. More recent stories include the discovery of the Sutton Hoo ship burial in 1939, the 1953 flood, and experimental projects; Cobra Mist at Orford Ness and Radar at Bawdsey Manor.

3.0 Special Qualities Indicators

In addition to the Natural Beauty Indicators the following Special Qualities Indicators for the Suffolk Coast and Heaths AONB are considered relevant:

Factor	Example Sub-Factor	Example Indicator	Suffolk Coast and Heaths AONB Indicator
Health and Well-being	Access along defined routes for walking and cycling	Presence of network of local and strategic access routes	Extensive rights of way network (including promoted and long distance routes), offering access to key landscape types (such as coast, Sandlings heath, forest, wetlands and estuaries) and between centres of population and key tourist destinations.
	Open access to areas of semi natural landscape	Presence of designated areas for open access	Areas designated as open access land, including extensive nature reserves, notably on heathland, along the coast and within woodland/forest provide opportunities for health improvement.
	Opportunities for active and passive recreation	Presence of range of facilities and opportunities for diverse recreational pursuits	Opportunities for a range of active and passive recreational pursuits on the coast and offshore and inland including rambling, boating, bird-watching and fishing at sea and in the estuaries and rivers. In addition, many sporting events held in the landscape, such as the Heritage Coast Run and Suffolk Coast Cycle route.
Community	Relationship between people and place	Evidence that communities have a long established connection to the places in which they live and work	Strong sense of local and family heritage (including dialect), and evidence of long established connections to the landscape – such as fishermen and larger estates.
		Evidence that communities have a close relationship to their surroundings	Active commoners, farmers and artistic community demonstrate strong links between communities and their landscape. Increasing number of community-led initiatives, particularly on the coast and estuaries.
		Evidence of a local food culture	Opportunities to ‘taste’ the landscape with great significance placed on local food and drink (e.g. Adnams Brewery, local smokeries and oysterages and annual food and drink festival held in Aldeburgh).

Economy	Landscape, community and economy closely intertwined	Evidence that the landscape and community forms an important part of the local economy	The landscape is an important contributor to the local economy. The coast in particular is a major tourist destination. Other notable contributors to the local economy are recreational sailing (with associated boatyards and moorings), farming, energy generation at Sizewell and attractions/events in and close to the AONB such as Minsmere RSPB Reserve, Snape Maltings, Latitude Festival and Aldeburgh Festival.
		Evidence of Community conservation schemes through which funding for grass-roots community and conservation projects within the AONB is secured.	Local visitor payback scheme, currently called 'AONB Community and Conservation Fund', into which tourism businesses contribute 'visitor payback funds' which are then used to support grass roots conservation, access and education projects.
		Evidence of clearly defined 'brand' that is underpinned by the local landscape	Active promotion of the Suffolk Coast as a tourist destination founded on the special qualities of the area and more specifically as part of branding associated with local products (e.g. Adnams) and the 'energy coast'.
Ecosystem Goods and Services	Landscape delivers broad range of ecosystem goods and services	Evidence that the landscape performs a diverse range ecosystem services	One of the most significant ecosystems in lowland UK containing several broad habitat types which perform a wide range of ecosystem goods and services under the three broad categories of 'provisioning', 'cultural' and 'regulating' ⁱⁱ (e.g. regulating climate, carbon storage, water storage, flood defence, flood prevention and climate change adaptation through linked habitats).

4.0 References

ⁱ Natural England (2011) Guidance for Assessing Landscapes for Designation as National Park or Area of Outstanding Natural Beauty in England

ⁱⁱ UK National Ecosystem Assessment (2011) The UK National Ecosystem Assessment: Synthesis of the Key Findings. UNEP-WCMC, Cambridge.

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Note: Version agreed between EDF Energy, Suffolk Coast and Heaths AONB Partnership, Suffolk County Council, Suffolk Coastal District Council and Waveney District Council.

VOLUME II:
TECHNICAL APPENDICES

7.4 Special Landscape Areas, Special Landscape Quality Indicators

Special Landscape Areas Paper

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Special Landscape Areas (SLAs)

Introduction

Further to discussion and email exchanges with Nick Newton and Phil Watson, and subsequently agreed with LVIA Consultees at a meeting on 17 October 2016, this paper establishes an agreed, evidence based narrative that describes the 'special landscape quality' indicators of areas that fall within the non-statutory SLA designation within Suffolk Coastal District.

Background to SLA Designation in Suffolk

Papers from the early and mid 1980's led to the identification of SLAs in the Suffolk County Structure Plan.

SLAs were also subsequently identified in Local Plans, broadly drawing on criteria set out in a Planning Committee Paper (22 May 1986) and relevant Structure Plan Policy.

The most recent iteration of the Structure Plan Policy relevant to SLAs (Policy ENV 8) dates to 2001 and established four broad criteria for defining SLAs:

- “(a) River valleys which still possess traditional grazing meadows with their hedgerows, dykes and associated flora and fauna;*
- (b) The Brecks, including remaining heathland, former heath recently ploughed other arable areas, river valleys and the characteristic lines and belts of Scotts pine;*
- (c) Historic parklands and gardens which still possess significant features of their former status;*
- (d) Other areas of countryside where topography and natural vegetation, particularly broad-leaved woodland, combine to produce an area of special landscape quality and character”.*

Of the four defined broad characteristics, only two were judged relevant to Suffolk Coastal District in the identification and designation of SLAs in the District. These are the characteristics pertaining to river valleys and historic parks and gardens (see below).

Existing Policy Position (Suffolk Coastal District)

SLAs are a saved policy (Policy AP13) from the Suffolk Coastal Local Plan (adopted 2001) and referred to in the preamble to Strategic Policy 15 in the Suffolk Coastal District Local Plan - Core Strategy and Development Management Policies Development Plan Document (July 2013).

Saved Policy AP13 states that *“The valleys and tributaries of the Rivers Alde, Blyth, Deben, Fynn, Hundred, Mill, Minsmere, Ore and Yox, and the Parks and Gardens of Historic or Landscape Interest are designated as Special Landscape Areas and shown on the Proposals Map. The District Council will ensure that no development will take place which would be to the material detriment of, or materially detract from, the special landscape quality.”*

The preamble to the saved policy (Suffolk Coastal Local Plan remaining ‘Saved Policies’ July 2013), records that SLAs are areas within Suffolk with special landscape attributes, which are particularly vulnerable to change and as such these are designated as SLAs.

Strategic Policy SP15 in the Suffolk Coastal District Local Plan Core Strategy and Development Management Policies Development Plan Document (July 2013) does not refer to SLAs directly, but does record that *“...the valleys and tributaries of the Rivers Alde, Blyth, Deben, Fynn, Hundred, Mill, Minsmere, Ore, Orwell and Yox, and the designated Parks and Gardens of Historic or Landscape Interest are considered to be particularly significant.”*

The preamble to Strategic Policy SP15 states that *“The district also contains other land that is designated at the county level as being important for its landscape value (river valleys and estuaries), the Special Landscape Areas (SLA) as well as landscape types identified through the Suffolk Landscape Character Assessment (LCA). Those other parts of local importance will be designated as such, being a key asset for local people and visitors.”*

‘Special Landscape Quality’ Indicators (Suffolk Coastal District only)

Drawing on the material reviewed, the following describes the ‘special landscape quality indicators’ for the SLA designation relevant to Suffolk Coastal District.

- Traditionally grazed river valley meadows and marshes with intact hedgerows and dykes and associated flora and fauna.
- 18th and 19th century designed parks and gardens, and occasionally areas of farmland in their surroundings that contribute to their setting.

End

