HORIZON NUCLEAR POWER

WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Wylfa Newydd Project

8.24.2 Site Selection Reports - Volume 2 – Wylfa Newydd Development Area

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1 Introduction

1.1 The Wylfa Newydd Project

1.1.1 Horizon is applying to the Secretary of State for a Development Consent Order (DCO) under the Planning Act 2008 [RD1], to construct, operate and maintain a new nuclear power station on land west of Cemaes on Anglesey. The Wylfa Newydd Project comprises the construction, operation and decommissioning of the Wylfa Newydd DCO Project.

1.1.2 The Wylfa Newydd DCO Project is defined as those parts of the Wylfa Newydd Project which are to be consented by the DCO, comprising: the Power Station; other on-site development; Marine Works; the Off-Site Power Station Facilities; and the Associated Development. Please refer to Environmental Statement (ES) Volume A Chapter A2 (Application Reference Number: 6.1.2) for a more detailed description of the Wylfa Newydd Project.

1.2 The purpose of this report

1.2.1 The purpose of this report is to outline Horizon's reasoned approach to determining the location of the main temporary and permanent components to be accommodated within the Wylfa Newydd Development Area, including the Power Station itself. It consolidates and updates all previous site selection work carried out in support of Wylfa Newydd DCO Project and provides final conclusions regarding the chosen layout of the main components within the Wylfa Newydd Development Area.

1.2.2 Importantly, this report should be read in conjunction with Site Selection Report (SSR) Volume 1 (Application Reference Number: 8.24.1). SSR Volume 1 introduces the site selection process undertaken for Wylfa Newydd DCO Project, explains the structure of the SSR, the planning policy context for site selection, the history of site selection, and the key factors that have determined the approach adopted by Horizon.

1.3 Wylfa Newydd Development Area

1.3.1 The Wylfa Newydd Development Area comprises the indicative areas of land and sea including the Power Station Site and the surrounding areas that would be used for the construction and operation of the Power Station, other on-site development, the Marine Works and the Site Campus.

1.3.2 Please refer to section 2 of this report for further detail regarding the Wylfa Newydd Development Area and its environs.

1.4 Structure of this report

1.4.1 The remainder of this report is structured as follows:

- Section 2 – explains the origins of the Wylfa Newydd Development Area and provides a description of the location and key features;
- Section 3 – summarises the permanent and temporary components that are to be accommodated within the Wylfa Newydd Development Area;
- Section 4 – outlines the site selection process and methodology for determining the layout of the permanent and temporary components;
- Section 5 – summarises the process of siting the main permanent components within the Wylfa Newydd Development Area;
- Section 6 – summarises the process of siting the main temporary components within the Wylfa Newydd Development Area; and
- Section 7 – summary and conclusion.

1.4.2 The report also includes numerous figures to aid in presenting the site selection process and conclusions reached.

2 The Wylfa Newydd Development Area

2.1 Introduction

2.1.1 This section describes the location and environmental context of the Wylfa Newydd Development Area, before briefly explaining its origins. Please refer to the ES Chapter D1 (Application Reference Number: 6.4.1) for a more detailed description.

2.2 Location and environmental context

2.2.1 The Wylfa Newydd Development Area comprises an area of approximately 404 hectares (ha) and is bounded to the north by the Existing Power Station and a stretch of coastline including Wylfa Head. It extends into the marine environment at Porth-y-Pistyll. To the east, it is separated from the town of Cemaes by agricultural land. The A5025 road defines part of the south-east boundary. To the south and west, the site abuts agricultural land with a small number of residential dwellings and farmsteads. To the west, the site is bounded by the coastal hinterland and Cestyll Garden, beyond which lies Cemlyn Bay.

2.2.2 The landscape in this area is characterised by small rounded hills (known as drumlins). Land within and surrounding the Wylfa Newydd Development Area is predominantly in agricultural use, for grazing by sheep or cattle. Land is contained by hedgerows and dry stone walls ('Cloddiau'), and crossed by a network of roads, rural lanes, watercourses and overhead electricity infrastructure.

2.2.3 Settlement patterns around the Wylfa Newydd Development Area are characterised by small clusters of residential dwellings and more isolated farmsteads. Larger settlements in the immediate vicinity of the Wylfa Newydd Development Area include the villages of Cemaes, 2km to the east, and Tregele, 1km to the south-east.

2.2.4 A number of Public Rights of Way (PRoW), including the Wales Coast Path and the Copper Trail, cross the Wylfa Newydd Development Area. The Wales Coast Path is a long-distance trail that follows the entire coastline of Wales. Some sections of the route divert inland where access is restricted, as is the case where the path runs inland of the Existing Power Station.

2.2.5 Land to the north and west of the Wylfa Newydd Development Area is within the Anglesey Area of Outstanding Natural Beauty (AONB) and the North Anglesey Heritage Coast. The Wylfa Newydd Development Area also lies within the locally designated Anglesey Special Landscape Area, a designation which applies to the whole of Anglesey outside of the AONB.

2.2.6 There are a number of sites subject to ecological conservation designations (both statutory and non-statutory) of international, national and local

importance within and in the vicinity of the Wylfa Newydd Development Area. Notable sites are:

- Tre'r Gof and Cae Gwyn Sites of Special Scientific Interest (SSSIs),
- Cemlyn Bay SSSI which forms part of the Ynys Feurig, Cemlyn Bay and The Skerries Special Protection Area (SPA);
- Cemlyn Bay Special Area of Conservation (SAC);
- North Anglesey Marine SAC; and
- Anglesey Terns SPA.

2.2.7 The location of the Wylfa Newydd Development Area and the key environmental features are shown in figures 2-1 and 2-2.

2.3 Origins of the Wylfa Newydd Development Area

2.3.1 The National Policy Statement (NPS) for Nuclear Power Generation (NPS EN-6) [RD2] (paragraph 4.1.1) identifies the majority of the Wylfa Newydd Development Area (known as the 'Wylfa NPS Site') as one of a small number of sites in the UK that the Government considers to be 'potentially suitable' for the deployment of new nuclear power stations. As such, the principle of nuclear power generation at the Wylfa NPS Site is established.

2.3.2 For the avoidance of doubt, notwithstanding that the DCO application now falls to be determined under section 105 of the Planning Act 2008, the Government has confirmed that it continues to give strong in principle support to project proposals at those sites listed in NPS EN-6, including the Wylfa NPS Site. Please refer to the Planning Statement (Application Reference Number: 8.1) for more detail in respect of the Government's position and status of the NPSs.

2.3.3 The Wylfa NPS Site is one of eight potentially suitable sites, which are known as 'listed sites' for the purpose of NPS EN-6. The other listed sites are located at Bradwell, Hartlepool, Heysham, Hinkley Point, Oldbury, Sizewell and Sellafield. The identification the sites was the result of a comprehensive Strategic Siting Assessment (SSA) undertaken by Department of Environment and Climate Change (DECC); to assess the suitability of nominated sites for the development of a nuclear power station. The SSA does not set a specific layout for the Power Station within the Wylfa NPS site or any other site, on the basis that it was not considered reasonable to expect nominators to have established, at the time of requesting nominations, detailed layouts for the whole of their proposed developments.

2.3.4 The SSA process, however, does assume that the key operational elements of any power station to be deployed would be located within the boundary of the listed site. Paragraph 2.3.5 of NPS EN-6 states that this would include the infrastructure that has the potential to directly cause a radiological hazard. Notwithstanding this, paragraph 2.3.4 recognises that further land,

additional to the boundary of the listed site, may be required for other elements of the development. Paragraph 2.3.4 goes on to reference car parks, access roads, marine landing facilities, construction and/or decommissioning of the nuclear power station as potentially requiring additional land, and emphasises that flexibility is required to accommodate detailed local-level considerations.

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Figure 2-1 Site location

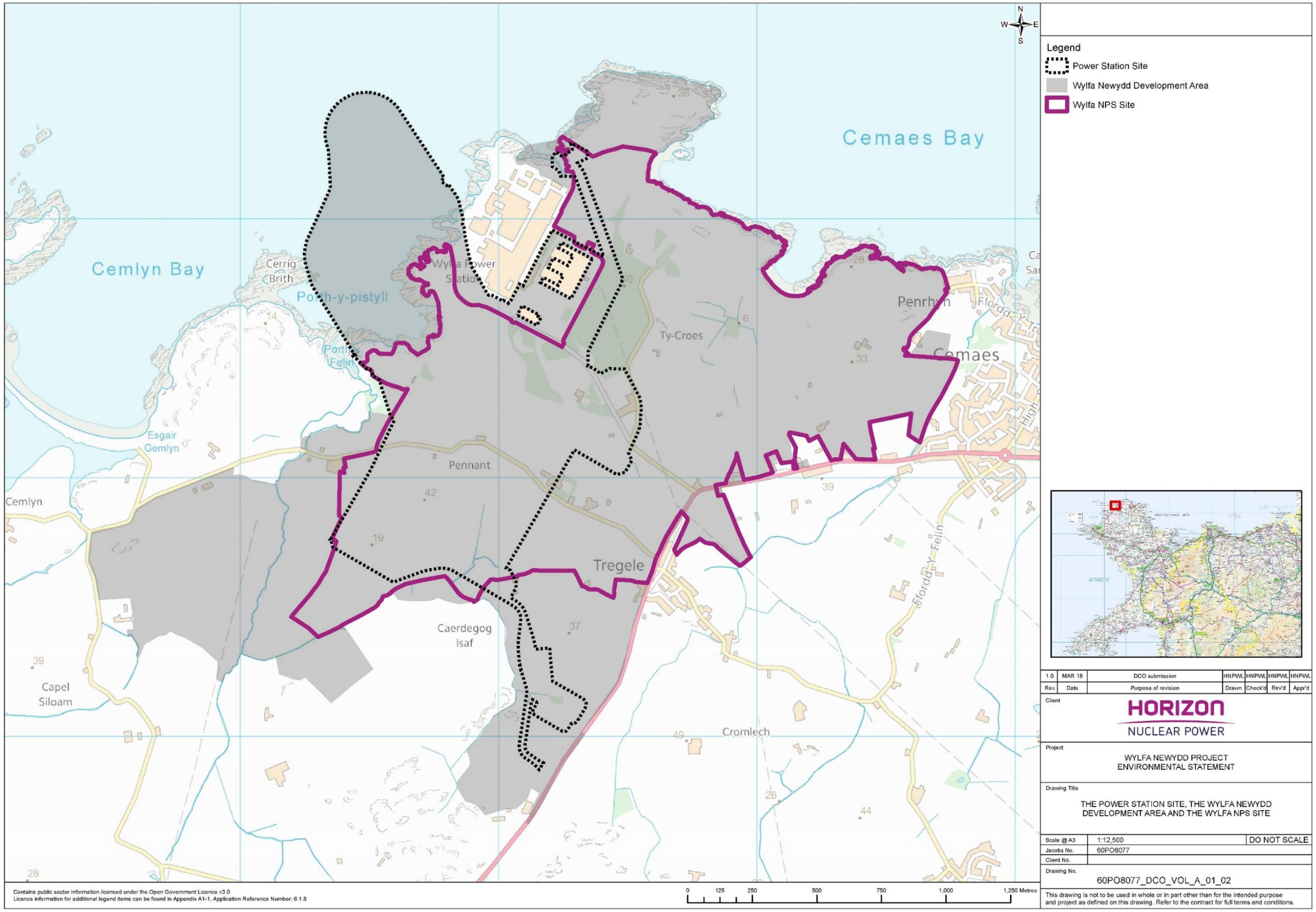
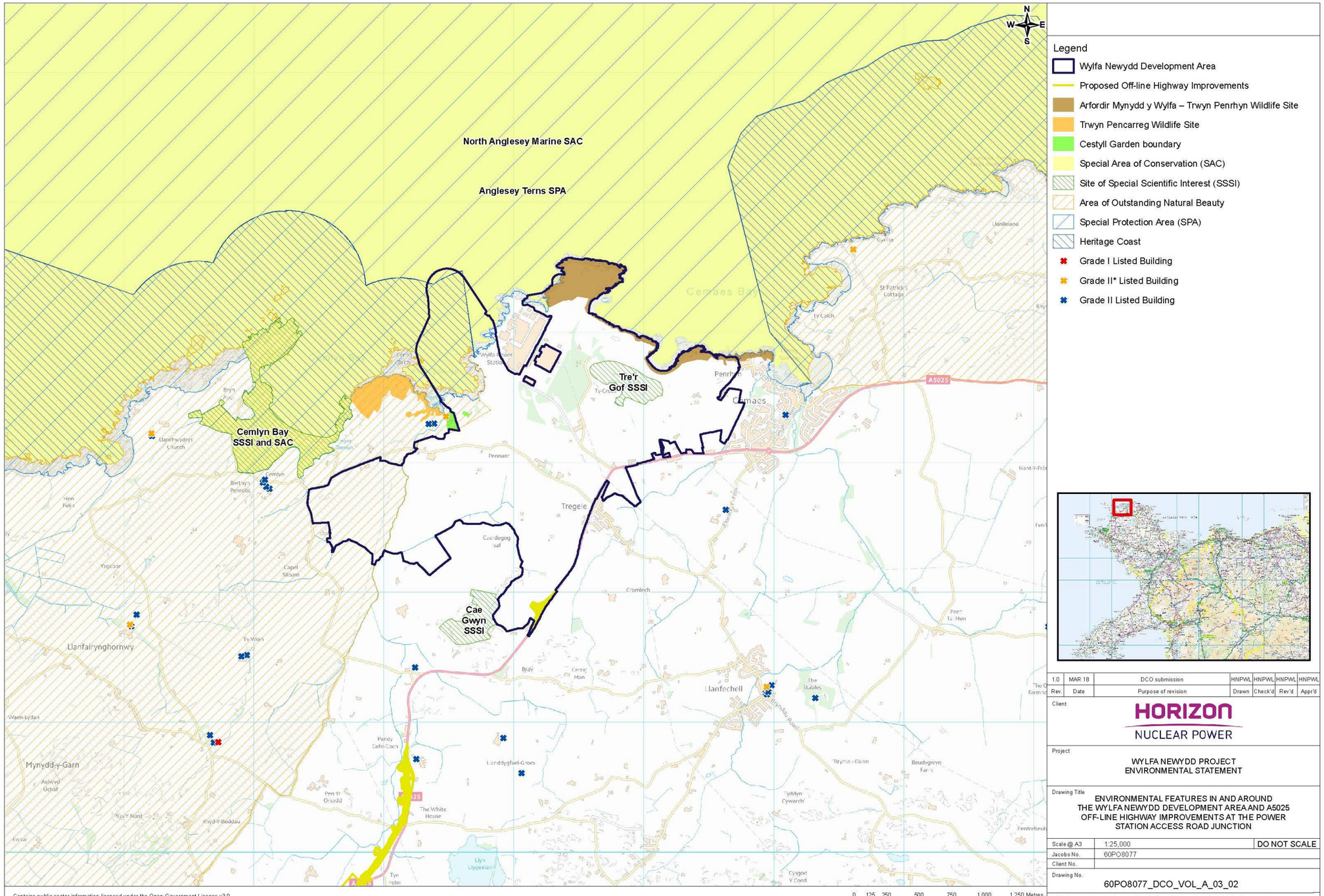


Figure 2-2 Key environmental constraints



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ENVIRONMENTAL STATEMENT

Drawing Title: ENVIRONMENTAL FEATURES IN AND AROUND THE WYLFA NEWYDD DEVELOPMENT AREA AND A5025 OFF-LINE HIGHWAY IMPROVEMENTS AT THE POWER STATION ACCESS ROAD JUNCTION

Scale @ A3	1:25,000	DO NOT SCALE
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Drawing No.: 60PO8077_DCO_VOL_A_03_02

3 Overview of the permanent and temporary components

3.1 Introduction

3.1.1 This section provides an overview of the main permanent and temporary components that would be accommodated within the Wylfa Newydd Development Area. The permanent items generally comprise the main built components of the Power Station and the temporary components are structures and uses required during construction.

3.2 Permanent components

3.2.1 For the purposes of this report, the main permanent components are as follows:

- **main plant** - located on a single power island and comprising those parts of the Power Station that enable the generation of power:
  - two reactor buildings;
  - two turbine buildings;
  - two control buildings;
  - one service building; and
  - one radioactive waste building.
- **common plant -** comprising those parts of the Power Station that service the generation of power but are shared between the two reactors:
  - common radioactive waste buildings; and
  - Cooling Water System (which also forms part of the Marine Works).
- **supporting facilities, buildings, structures and features** – including those parts of the Power Station necessary to support the operation and maintenance of the Power Station, including offices and security facilities;
- **other on-site development** - including landscape mounding works, new Power Station access road and car parking; and
- **Marine Works –** comprising the Cooling Water System, the Marine Off-loading Facility, breakwater structures, shore protection works, surface water drainage outfalls, waste water effluent outfall (and associated drainage of surface water and waste water effluent to the sea), fish recovery and return system, fish deterrent system, navigation aids and Dredging.

3.3 Temporary components

3.3.1 For the purposes of this report, the main temporary components that have been considered are as follows:

- construction laydown areas (including construction compounds);
- construction car parking;
- concrete batching plant; and
- the Site Campus.

3.3.2 The Wylfa Newydd DCO Project also includes temporary marine works, including temporary cofferdams and causeway, a temporary access ramp, navigation aids, temporary outfalls and a temporary barge berth.

3.3.3 Please refer to ES Chapter D1 (Document Ref 6.4.1) for a more detailed description of the Wylfa Newydd Project, including the components to be accommodated within the Wylfa Newydd Development Area.

4 Methodology

4.1.1 Horizon's proposals for the Power Station itself are largely driven by the need to deliver and operate the Power Station in a timely, safe and efficient manner. As a result, many of the permanent components are limited in terms of where they can be located, particularly the main plant.

4.1.2 The following key considerations were taken into account in making decisions:

- regulatory requirements, including site security and safety requirements;
- technical and engineering requirements;
- other constraints and practicalities, including environmental assets within the Wylfa Newydd Development Area;
- planning policy;
- feedback from consultees; and
- project optimisation.

4.1.3 Numerous technical and environmental studies were produced in applying the above. These are referred to where necessary in sections 5 and 6 of this report.

5 Locating the permanent components

5.1 Introduction

5.1.1 This section explains the process of locating the permanent components within the Wylfa Newydd Development Area and any alternatives considered. These items are all located within the Power Station Site. The indicative layout plan for the DCO application is included at appendix 5-1.

5.2 Main plant

5.2.1 The main plant is located in a high security area (inner fence); within the outer fence that defines the Power Station Site. Horizon selected the location for the main plant on the basis of the following:

- It creates a compact development envelope and positions the generating units within the Wylfa NPS Site boundary, in accordance with NPS EN-6;
- The area is the largest uninterrupted and unconstrained space close to the Existing Power Station – the nearest constraints are Cestyll Garden and the Anglesey AONB to the west;
- A large part of the area is the lowest lying land within the Wylfa NPS Site. This is important for setting the Power Station development platform, which needs to be optimised relative to sea level, subject to any flood level constraints and excavation costs, to minimise cooling water pumping costs;
- The area is on the opposite side of the Existing Power Station to the population centre of Cemaes and is better screened from Cemaes by the existing topography, the Existing Power Station and its associated landscaping mounds;
- Avoidance of utilising land forming part of the Tre'r Gof SSSI, Wylfa Head, and pre-existing Dame Sylvia Crowe landscaping mounds (which screen the Existing Power Station);
- Provides access to cooling water directly from the Irish Sea;
- Minimises interference with the access route to the Existing Power Station, which assists in enabling Horizon's proposals to coordinate with the planned decommissioning of the Existing Power Station;
- Maintains potential for National Grid to continue using the existing 400 kilovolt overhead transmission lines and substation; and
- The orientation optimises new future grid connection and circulating water connections between the intake, condenser and outfall.

5.2.2 In terms of alternatives, Horizon considered locating the main plant to the south-east or east of the Existing Power Station. These options were ruled out on the following grounds:

- Closer to or encroach onto the SSSI;
- Closer to the villages of Cemaes and Tregele;
- Further away from the existing National-Grid substation;
- Require re-routing of the existing 400 kilovolt overhead transmission lines;
- Further away from the source of cooling water; and
- Further away from pre-existing cooling water infrastructure.

5.2.3 The above reasoning was presented at Stage 1 Pre-Application Consultation (PAC1) and no significant changes to this reasoning have been proposed at later stages of consultation.

5.2.4 Following optimisation (including optioneering workshops), significant changes were proposed to the configuration of the main plant, including reducing its size. However, the chosen location within the Wylfa Newydd Development Area (as shown in appendix 5-1) has remained consistent on the basis that it is considered to represent the best option.

5.3 Common plant and supporting facilities

5.3.1 The locations for the common plant and supporting facilities have largely been selected on the basis of operational pre-requisites (particularly, for the majority of the common plant, the necessity to be located close/adjacent to the main plant), the availability of suitable land/space and taking into account environmental considerations, such as the location of designated sites and local communities.

Fire Water Pump House and Make-up Water Treatment Building

5.3.2 The Fire Water Pump House and Make-up Water Treatment Building are located to the west of the main plant. There is an operational requirement for the buildings to be located close to main plant. For instance, to minimise losses of water and for pumping efficiency in case of fire.

5.3.3 There is insufficient land to the north and west of the main plant, and the land to the south is required for other facilities associated with the Power Station.

Emergency Response Centre

5.3.4 The Emergency Response Centre is located to the south of the main plant. There is an operational requirement to be located in proximity to the main plant, as this facilitates a quick response in an emergency situation.

5.3.5 Alternative sites to the east of the main plant were ruled out on the basis of community impact as they were closer to Tregele. There is insufficient land to the north.

Auxiliary Boiler Building

5.3.6 The Auxiliary Boiler Building is located to the west of the main plant. The boiler feeds steam into main plant and proximity is required for efficiency and economy.

5.3.7 Alternative sites to the east of the main plant were ruled out on the basis of community impact as they were closer to Tregele. There is insufficient land to the north and the land to the south is required for other facilities associated with the Power Station.

Reserve Ultimate Heat Sink

5.3.8 The Reserve Ultimate Heat Sink (RUHS) is located to north of the main plant. Provides alternate cooling capability during certain plant states (not operating state). The RUHS is located close to the main plant for operational and safety reasons. These cooling towers would be used during certain emergency events and support routine operational testing.

Conventional waste storage

5.3.9 The store is located to west of the main plant. The facility provides for the sorting and temporary storage of conventional waste generated at the Power Station before onward recycling or disposal. There is therefore an operational requirement for it to be located close to the main plant. Alternatives to the north and south of the main plant were considered, however this land is required for other facilities.

Administration building

5.3.10 The building is located to the south of the main plant, close to the main entrance building and car park. Alternative sites to the east of the main site were ruled out on the basis of being closer to Tregele. There is insufficient land to the north. Sites on the western side of the main site are further away from the main access road.

5.3.11 The buildings were being considered outside the site fence at PAC1, and only moved inside the fence following an option study with consideration of people movements through the gate, emergency response and security.

Maintenance facility

5.3.12 The facility is located within main plant high security area. There is an operational requirement for it to be located here, on the basis that it is required to serve the main plant 24 hours per day. No significant alternative locations have been considered as a result of the operational requirements.

Training and Simulator Building

5.3.13 The facility would be utilised by operational staff on a regular basis. An operational requirement is the ability of these to staff to move efficiently between the simulator building and the power station site. Therefore, having

considered options for locating the building in a number of locations on Anglesey, it was concluded that a location within the Wylfa Newydd Development Area is necessary for operational reasons.

5.3.14 Another factor influencing the location of the buildings is that the simulators would be used to train operational staff prior to the Power Station becoming operational. The simulators are therefore required early in the construction schedule. The facility would need to be operational during 2022 to allow sufficient time for the first set of operational staff to be fully trained in readiness for the commissioning activities in the final stages of Main Construction.

5.3.15 The need for the building in advance of operation means that there is a requirement for it to be located outside of the main construction areas, whilst providing convenient access to the A5025. These requirements dictated the options considered in locating the building.

5.3.16 At Stage 2 Pre-Application Consultation (PAC2) it was proposed to locate the building in the centre of the Wylfa Newydd Development Area, to the east of the village of Tregele and close to the existing access to the A5025. At Stage 3 Pre-Application Consultation (PAC3), following project optimisation, the location was revised to the south-west of Tregele and adjacent to the new access. The chosen location, as presented at PAC3, allows for the building to be protected to a greater degree from the noisiest and potentially most disruptive aspects of the Main Construction activities for the Power Station. The location is also further away from Tregele.

5.3.17 Other locations within the Wylfa Newydd Development Area were considered but rejected due to interference with other construction activities, difficulty of access during main stages of construction, being too close to the existing and proposed National Grid high voltage power lines, or insufficient land being available.

Outage Building

5.3.18 The outage building is located to the north-east of the main plant, adjacent to the access to the Existing Power Station. It was decided that the building and associated outage facilities should be separated from the main southern access to the main plant, so that the high numbers of outage staff can be managed and controlled through an independent access route.

5.3.19 As part of the optimisation process, consideration was given to locating the building and facilities to the south of the main plant. This was discounted on the basis of the large contractor numbers, the requirement to position other buildings to the south of the main plant, and inefficiencies (most outage workers would be within the turbine hall and this is closer to the northern end of the main plant).

Radioactive waste management

5.3.20 The radioactive waste management facilities would be located in a cluster to the south of the main plant. There are significant benefits associated with

constructability, conventional safety and radiological safety when the buildings are located together. For example, allowing the number of radioactive waste transfer routes to be minimised. Locating the facilities in reasonable proximity to the Main plant also minimises transfer distances.

5.3.21 Horizon originally proposed six potential locations for the storage facilities as part of a feasibility study. The following criteria were used in the assessment:

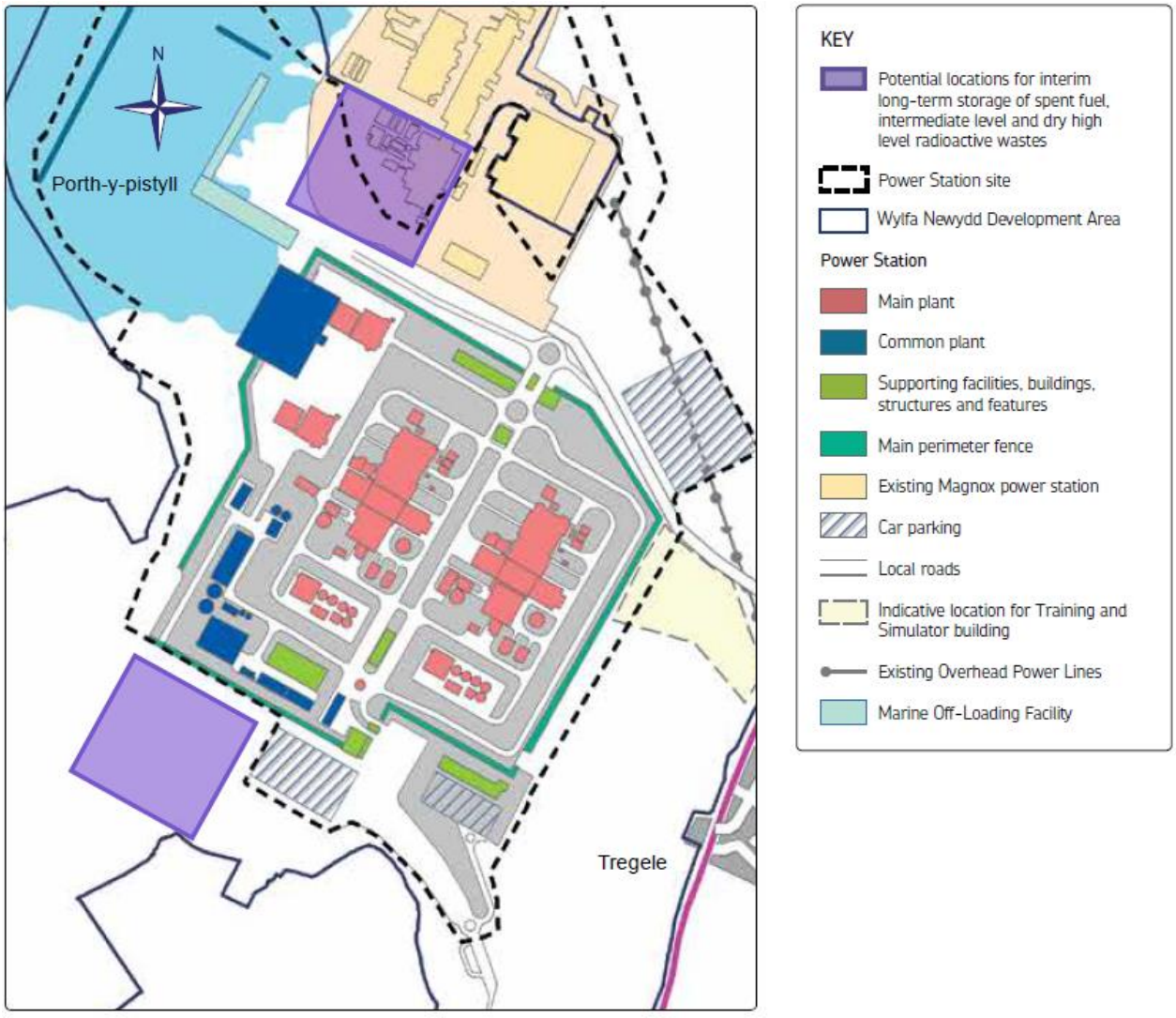
- land availability;
- haul path for cross-site transfer vehicles;
- conventional safety;
- nuclear safety;
- environmental impact;
- security;
- maintenance and inspection;
- impact of construction; and
- commercial / programme risk.

5.3.22 A screening workshop reviewed the six proposed locations to short-list feasible options and eliminated any that were considered unfeasible on practical, regulatory or commercial grounds. A feasibility study workshop was held with key Horizon stakeholders to review the short-listed options in greater detail, articulate perceived advantages and disadvantages of each option, and discuss opportunities for optimisation such as orientation of the facilities, co-location of wastes and phased construction.

5.3.23 Of the six options originally proposed, two were deemed potentially feasible. The options are located in close proximity to the main plant, whilst also being further away from the villages of Cemaes and Tregele, when compared to other alternatives located to the east.

5.3.24 The two options were presented at the January 2016 Update Consultation and are shown in figure 5-1 (the areas shaded purple).

Figure 5-1 Locations considered for the radioactive waste management facilities (January 2016)



5.3.25 Option 2 (shaded purple) is located immediately to the south-west of the main plant and Option 1 (shaded purple) located to the north of the Power Station Site on land currently occupied by the Existing Power Station, which, at that time, it was thought might have been available depending on the decommissioning programme.

5.3.26 Horizon considered a number of issues in selecting Option 2 (in line with the aforementioned criteria), including appropriate access for transport of the radioactive wastes, technical and regulatory considerations, environmental effects and the availability of the land.

5.3.27 It is acknowledged that Option 2 is closer to some sensitive receptors, including the AONB, and is more open. However, the decision to select Option 2 was primarily driven by assessment against the land availability criterion. It was determined that the land within the Existing Power Station Site (Option 1) would not be available for use when required, on the basis

that the land is required for decommissioning activities when the Power Plant is proposed to be operational in 2025.

5.3.28 Option 2 has been selected and is the chosen site.

5.4 Marine Works

Marine Off-Loading Facility

- Horizon undertook a strategic study in 2011 of the potential delivery options to the Wylfa Newydd Development Area for both abnormal indivisible loads (AILs) and bulk material loads by road, rail and sea. The study identified four potential sites for a MOLF, including:Site 1 – at Porth-y-pistyll, within the western part of the Power Station Site;
- Site 2 – located just north of Site 1 at Porth-y-Gwartheg, to the west of the Existing Power Station;
- Site 3 – Porthyr Ogof to the east of Wylfa Head; and
- Site 4 – Porth Wylfa, approximately 500m to the east of Porthyr Ogof.

5.4.1 The locations considered are shown at appendix 5-2.

5.4.2 Site 2 was discounted on the basis of its exposed nature and the considerable engineering required to make it both workable and acceptable. Site 4 was discounted on the basis of its exposed nature and its narrow inlet channel making it unsuitable for delivery of AILs. The preferred locations for a MOLF were Sites 1 and 3, both of which offered good levels of availability due to the shelter from natural topography.

5.4.3 Following cooling water intake system studies undertaken in 2011, the decision to construct an onshore intake was made (further detail provided later in this section). This required the construction of breakwaters to protect the intake, which presented the opportunity to position the MOLF infrastructure within Porth-y-pistyll (Site 1) by designing the breakwaters to also offer protection to vessels that could deliver freight directly to the Power Station Site.

5.4.4 Locating the MOLF at Site 1 in preference to Site 3 was considered beneficial for the following reasons:

- By using Site 1 there is potential to concentrate the development to the south-west of the Existing Power Station and not to wrap it around both sides of the Existing Power Station, as would be required by using Site 3. The single consolidated site also minimises land use for the development and should improve construction site security. Construction in the marine area and associated impacts are also contained to just one main area;
- From a health and safety perspective, Option 1 would avoid the need for most construction traffic to cross the Existing Power Station's access road during construction;

- There would be no need to construct heavy haul route from the MOLF at Site 3 to the construction site, a distance of approximately 1 km. This heavy haul route and particularly its use during construction would impinge on both the Tre'r Gof SSSI and landscaping mounds to the east of the Existing Power Station;
- The construction and use of the heavy haul route to Site 3, the use of the MOLF, and the planned construction activities would require the exclusion of the public from a large part of this side of the Wylfa Newydd Development Area, including the Wales Coast Path. This would make public access to Wylfa Head difficult, if not impossible, during the Main Construction stage;
- The construction and use of the MOLF at Site 3 could impact on sensitive sea bird colonies on Wylfa Head (particularly choughs) and would impact on the marine life in this bay;
- The location for the MOLF at Site 3 is visible from many parts of the Wales Coast Path around Cemaes Bay and out to Llanbadrig Point; construction and use of the MOLF at this location would affect users of the Wales Coast Path along this whole section of the North Anglesey Heritage Coastline;
- By using Site 1, after construction the land to the east of the Existing Power Station would be available for enhancement of the existing environmentally designated areas to provide mitigation and could be used to help generate a net ecological benefit from Wylfa Newydd DCO Project. In general, the land to the east of the Existing Power Station is of higher ecological and environmental value than the farm land to the west;
- Locating the MOLF at Site 1 requires a much shorter heavy haul route;
- The breakwaters and MOLF at Site 1 are partially screened from views looking west from land to the east by the natural topography and there would only be a short section of the Wales Coast Path from which they are visible. From seaward, the MOLF and breakwaters would be set against the backdrop of both the Power Station and the Existing Power Station, thus reducing their visual impact; and
- The MOLF is to be retained for potential future use during the operational lifetime of the Power Station for transport of large items of plant and equipment that may require replacement. At Site 1, maintaining this option is much simpler by virtue of the proximity of the MOLF to the Power Station.

5.4.5 Site 1 at Porth-y-pistyll is the selected location for the MOLF.

Cooling water intake and outfall

5.4.6 Various options for locating the Cooling water (CW) intake and outfall have been considered. Horizon carried out a number of studies in 2011 and the various options have since been subject to further technical appraisal and consultation. The options considered include both onshore and offshore options. The location of options considered is illustrated in appendix 5-2.

5.4.7 Common impacts to all onshore and offshore CW intake options include construction impacts and habitat loss from infrastructure (e.g. the pumphouse and intake tunnels), and the entrapment of fish and other marine species within the CWS during operation. Common impacts for all onshore and offshore CW outfall options include construction impacts and habitat loss from infrastructure and impacts associated with the discharge of residual heat and anti-fouling products to the surrounding sea during operation.

5.4.8 The degree of these impacts vary in their severity depending on the locations and footprint of the CW intake and outfall structures, the ecological receptors likely to be effected and the methods of construction.

5.4.9 Taking into account the above factors, the selected location for the CW intake is the Porth-y-pistyll foreshore (onshore) and the selected location of the CW outfall is to the south-west of Wylfa Head, adjacent to the outfall associated with the Existing Power Station. The key reasons for selecting these locations are as follows:

- The selected onshore CW intake location at Porth-y-pistyll was determined to provide a number of intrinsic environmental advantages over offshore options; and
- The selected onshore CW outfall location is situated adjacent to the Existing Power Station outfall. The location was determined to result in fewer environmental impacts than potential alternatives, both onshore and offshore. The use as a CW outfall is also established in this location.

5.4.10 The selected locations are shown in appendix 5-1. Please refer to the relevant alternatives and design evolution chapter in the ES (Application Reference Number: 6.4.2) for more detail in terms of the alternatives considered.

5.4.11 The location of the breakwater is defined by the position of the CW intake, on the basis that they must be positioned to provide optimum protection. Please refer to the relevant alternatives and design evolution chapter in the ES (Application Reference Number: 6.4.2) for a more detail in respect of the breakwater and alternatives considered.

5.5 Other on-site development

Access and parking

5.5.1 The factors that have been considered in locating the new roundabout linking to the A5025 are set out in SSR Volume 7 (Application Reference Number: 8.24.7), which deals with the Off-line Highway Improvements.

5.5.2 The internal access road from the roundabout to the Power Station has been aligned to provide the most efficient route, whilst conforming to road safety and technical requirements.

5.5.3 Four car parks have been provided adjacent to:

- the main access from the A5025 and training and simulator building;
- the outage building and facilities; and
- the administration building.

5.5.4 The nature of the above buildings and the necessity to locate parking adjacent to the site access roads has dictated the location of the car parks.

5.5.5 The position of the accesses from the A5025, the internal access roads and the car parks are shown appendix 5-1.

Landscape mounding

5.5.6 The chosen location of the mounds is the result of a combination of many influencing factors and represents a balanced solution which seeks to utilise available land to provide a landscape setting which reflects the special landscape context, provide effective screening (visual and noise), and take account of the potential for adverse impacts on environmental features.

5.5.7 It was firstly necessary to identify potentially available land; excluding key areas required during construction/operation, and seeking to where possible avoid sensitive receptors. These broad areas were then further refined, taking into account:

- where other permanent buildings and structures would need to be located;
- where the existing landform could best be replicated;
- protecting environmental assets as far as possible; and
- providing the most effective screening.

5.5.8 It is anticipated that some of the proposed mounds would provide a marked level of noise attenuation to the surrounding sensitive receptors, on the basis that they have been positioned in locations that provide screening adjacent to Cemaes and Tregele. The selected location for mounding is shown in the drawing at appendix 5-3.

5.5.9 The sensitive receptors within/around the Wylfa Newydd Development Area significantly influenced the location of the mounds, in addition to the other

factors set out above. The location of the mounding in relation to key designated sites and sensitive receptors is considered further below.

5.5.10 The works in the area adjacent to the Tre`r Gof SSSI have been minimised where possible in order to reduce the risk of disturbance to the sensitive surface and ground water conditions which feed the environmental receptor. A buffer zone around the Tre'r Gof SSSI would also be put implemented. Please refer to the relevant alternatives and design evolution chapter in the ES (Application Reference Number: 6.4.2) for more detail.

5.5.11 Mounds D and E have been located so as not to encroach directly into the Cestyll Gardens or its setting. New blocks of woodland planting are proposed along the north, south and eastern boundaries to help mitigate these impacts. Please refer to the relevant alternatives and design evolution chapter in the ES (Application Reference Number: 6.4.2) for more detail.

6 Locating the temporary components

6.1 Introduction

6.1.1 This section explains the process of locating the main temporary components within the Wylfa Newydd Development Area and any alternatives considered.

6.2 Construction laydown areas

6.2.1 There would be (i) main areas primarily to serve construction of the main plant, and (ii) a number of secondary areas to serve the construction of other temporary and permanent components within the Wylfa Newydd Development Area.

6.2.2 For the main construction laydown areas, land immediately to the east and south-west of the Power Station Site have been selected as the most feasible locations. The rationale is as follows:

- Proximity to the Power Station Site, proposed location for the MOLF (at Porth-y-pistyll), and the main access off the A5025 – minimising transfer distances from these facilities and areas;
- Consolidation of the Main Construction activities for the Power Station, allowing for contiguous construction compounds that enable efficiency of land use and site management; and
- Reducing interaction and potential interference with the planned decommissioning activities at the Existing Power Station.

6.2.3 The general locations of the remaining, smaller construction laydown areas have primarily been determined by the location of the other components within the Wylfa Newydd Development Area. The selected locations include:

- Areas to the north of the Existing Power Station – to serve the Site Campus and Cooling Water System outfall and tunnelling; and
- Areas to the north and west of the main plant – to serve the Cooling Water System intake, breakwaters and MOLF.

6.2.4 The main driver in selecting these locations has been the need to locate them in close proximity to the components they are intended to serve during construction, in order to maximise efficiencies. Environmental constraints within the Wylfa Newydd Development Area were also factored into the decision making process and mitigation has also been proposed where necessary.

6.2.5 The laydown areas serving the Site Campus and Cooling Water System outfall have been located further away from the Tre'r Gof SSSI and Cemaes when compared to other possible alternatives to the east. The construction laydown area to the west of the main plant and to the south of Porth- y-pistyll bay, however, would contribute to direct and indirect impacts on Cestyll Gardens.

6.2.6 The two main elements of Cestyll Gardens are the valley garden and the remains of the kitchen garden (these are shown in figure 2-2). While the kitchen garden is not unusual, and several similar gardens can be found attached to many of the minor gentry houses on the island, the value of Cestyll Garden derives from the valley garden and its historical associations, the sensitive use of topography to create a naturalistic setting, the collection of plants and the views seaward.

6.2.7 The construction laydown area would require removal of the kitchen garden and it would impact on the Essential Setting of the gardens. New blocks of woodland planting are proposed along the north, south and eastern boundaries to help mitigate these impacts. It has not been possible to locate the laydown area in an alternate location as a result of the following:

- The area is required to provide access to the western breakwater and allow surface water and treated effluent discharge;
- The area is the only available space in close proximity to the western breakwater, as other areas adjacent to Porth- y- pistyll bay are required to support other components (e.g. the MOLF); and
- Repositioning the laydown area further away from Cestyll Gardens would require other laydown areas within the Wylfa Newydd Development Area to the repositioned, meaning that it may be necessary to encroach on the Tre'r Gof SSSI. This is as a result of the lack of available space within the Wylfa Newydd Development Area.

6.2.8 Please refer to the relevant alternatives and design evolution chapter in the ES (Application Reference Number: 6.4.2) for more detail regarding the impact on Cestyll Garden and alternatives considered.

6.3 Construction car parking

6.3.1 Temporary car parking is proposed in various locations to service the construction areas and Site Campus. The locations are pre-determined by the location of the main construction areas, the position of the accesses from the A5025 and the Site Campus; all of which require parking in close proximity.

6.4 Concrete batching plant

6.4.1 The concrete batching plant would be located within the Power Station Site, close to the proposed MOLF. During optimisation an alternate location to the south of the Main plant was considered. However, this was discounted in favour of shorter delivery of bulk materials that would be facilitated by locating the plant in close proximity to the MOLF. The location is also further away from residential properties and the AONB.

6.4.2 There would be some potential for emissions of dust from the batching plant if not appropriately managed. The plant would therefore include embedded mitigation to prevent or reduce emissions of dust. These include, amongst

other things, enclosing the various parts of the plant and use of silos to store cement powder.

6.4.3 Please refer to the relevant alternatives and design evolution chapter in the ES (Application Reference Number: 6.4.2) for more detail.

6.5 Temporary marine works

6.5.1 The location of the temporary marine works is largely defined by the location of the subsequent Marine Works (permanent works) – those covered in section 5.4 of this report.

Temporary access ramp construction

6.5.2 As one of the initial marine construction activities, a temporary access ramp would be constructed at the southern end of Porth-y-pistyll. The ramp would take the form of a slipway and would be constructed from crushed rock. The toe of the ramp would be at around Low Water Springs level. For each barge-unloading operation a ramp formed from crushed rock or similar would be reshaped to enable the construction plant to drive off the barge.

6.5.3 Once built, it is anticipated that the ramp would remain in place for a limited period of time (up to one year). It would then be dismantled and removed having served its purpose. The resulting materials would be re-used on-site or off-site (e.g. as aggregate).

Temporary barge berth

6.5.4 A temporary berthing and unloading facility would be required to accommodate barges importing construction materials for subsequent Marine Works (e.g. quay wall materials for the MOLF).

6.5.5 The berth would be located to the south of (and adjacent to) the planned site of the eastern breakwater within the area of reclaimed land. Its structure would comprise a modular retaining wall constructed using either steel shipping containers filled with crushed rock or other suitable fill, or another suitable modular type retaining wall structure. An area in front of the retaining wall would be filled and levelled with rock to create a platform onto which barges could be grounded as the tidal level falls.

6.5.6 Once the MOLF is part-constructed and the temporary barge berth is not required, it would be removed.

Construction of the temporary cofferdam and southern causeway

6.5.7 The temporary cofferdam and a causeway approximately would be required to create a watertight seal inside which the inner harbour would be dewatered and excavated in the dry. The temporary cofferdams would be constructed by depositing rubble stone and rock armour won from the Power Station Site over the foreshore and seabed to form rubble mound structures.

6.6 Site Campus

6.6.1 For the avoidance of doubt, this report considers the selected site and the consideration of alternatives within the Wylfa Newydd Development Area only. The reasoning behind the decision to locate the campus style accommodation on-site is covered in SSR Volume 4 (Application Reference Number: 6.4.1).

Identifying options

6.6.2 Horizon identified two prospective sites known as 'Option A' and 'Option B'. The location of each is shown in figures 6-1 and 6-2 on the following page. The options were selected on the basis that each is of sufficient size to accommodate up to 4,000 bed spaces, whilst not interfering with long-term construction activities or occupying areas required for permanent components.

Figure 6-1 Indicative location of Option A (Site Campus)

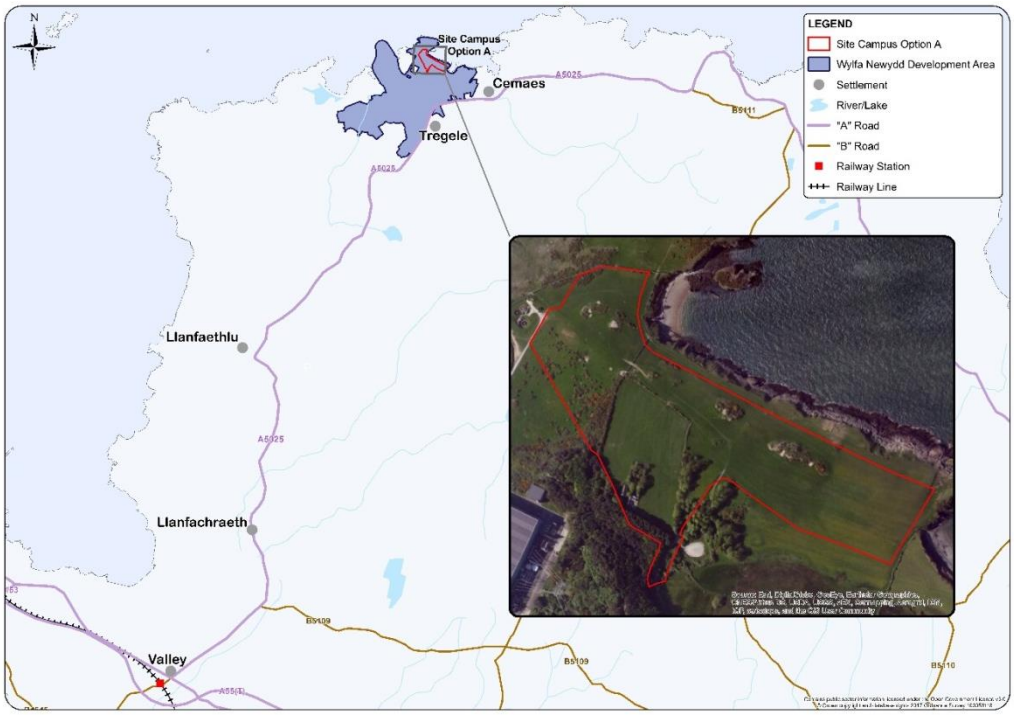
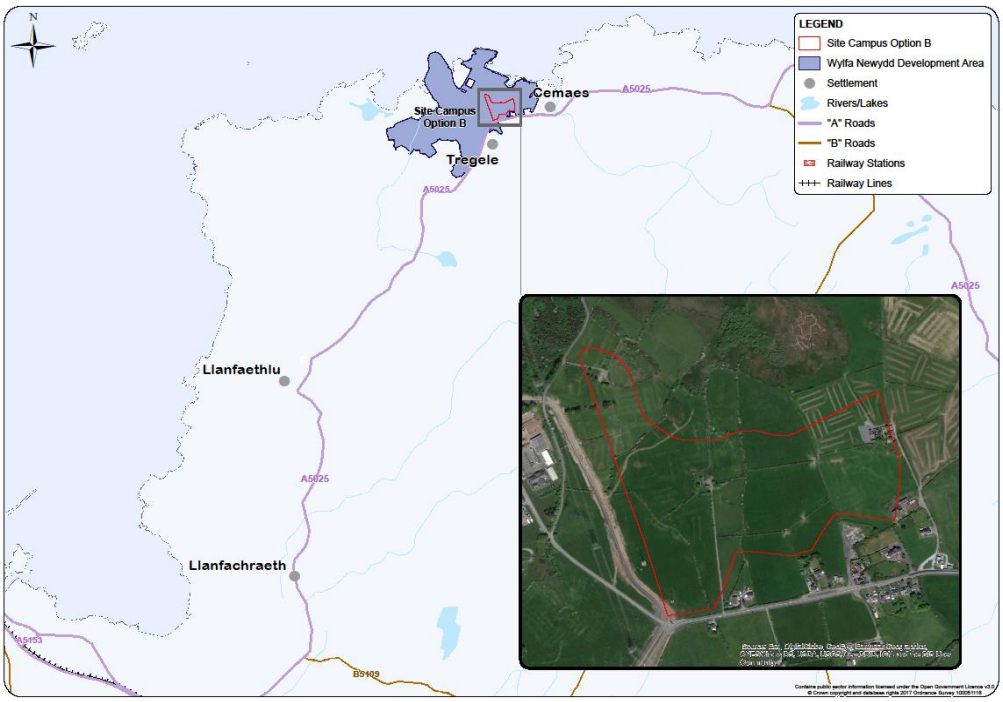


Figure 6-2 Indicative location of Option B



Assessing the site options

Assessment criteria

6.6.3 The site options were then comparatively assessed through consideration of the following criteria:

- Areas further away from the main construction areas are preferred, in order to reduce the risk of adverse impacts relating to, amongst other things, noise and dust;
- Areas further away from sensitive environmental assets and designated sites are preferred, to reduce potential adverse impacts; and
- Areas further away from Tregele and Cemaes are preferred, in order to reduce the potential for adverse impacts on living conditions, and Welsh language and culture.

6.6.4 The assessment is summarised below.

Option A

6.6.5 The site is located adjacent to the Tre'r Gof SSSI and there is a burial ground within the site. The proximity of the site to the Wales Coast Path may increase impact on users and recreation. There may also be increased disturbance to sea birds and the bat barn.

Option B

6.6.6 The site is also located adjacent to the Tre'r Gof SSSI. The site is much closer to residential properties than Option A. The site is located in closer proximity of the main part of the construction site than Option A; therefore there is an increased risk from dust and noise.

6.6.7 Furthermore, as a result of on-going environmental assessment and mitigation design, it was later determined that the land associated with Option B is required for landscape mounding. As such, Option B was no longer considered available.

Conclusion

6.6.8 Option A was selected on the basis that it is:

- the only site within the Wylfa Newydd Development Area able to provide sufficient area, whilst not interfering with other proposals;
- further from the main construction area than Option B; and
- more remote from the local community (Tregele and Cemaes).

6.6.9 For further detail relating to potential effects on the SSSI and the environmental matters considered in selecting Option A, please refer to ES Volume D 'WNDA Development D2 - Alternatives and design evolution' (Application Reference Number: 6.4.2) and ES Volume D 'Wylfa Newydd Development Area Development D9 - Terrestrial and freshwater ecology' (Application Reference Number: 6.4.9).

6.6.10 The off-site compensation proposals are set out in ES Appendix D9.23 (Application Reference Number: 6.4.56), including the methodology applied to select sites.

7 Summary and conclusion

7.1.1 This report has assessed the options that have been considered in determining the layout of the main permanent and temporary components within the Wylfa Newydd Development Area, including the Power Station itself, as part of Wylfa Newydd DCO Project.

7.1.2 The Wylfa Newydd Development Area comprises the indicative areas of land and sea, including the Power Station Site and the surrounding area, to be used for construction and operation of the Power Station. The area is representative of the maximum area that would be physically affected by construction activities related to the Power Station and used to form the setting and landscaping features of the operational Power Station.

7.1.3 Horizon considered the following factors in locating the various permanent and temporary components:

- regulatory requirements, including site security and safety requirements;
- technical and engineering requirements;
- other constraints and practicalities (including environmental assets within the Wylfa Newydd Development Area);
- planning policy;
- feedback from consultees; and
- cost and viability.

7.1.4 Numerous technical and environmental studies were produced in applying the above, in addition to using professional judgement. Also, where necessary, decisions were subject to a structured optioneering process as part of project optimisation.

7.1.5 The systematic process of locating the various components within the Wylfa Newydd Development Area can broadly be summarised as follows:

- Identifying constraints within the Wylfa Newydd Development Area, including environmental designations and heritage assets;
- Determining the location of the main plant within the Wylfa Newydd Development Area;
- Determining the location of the common plant, largely with reference to the position of the main plant;
- Siting other supporting and ancillary buildings within the Power Station Site, taking cognisance of the available space and Wylfa Newydd Development Area boundary;
- Considering various locations for the radioactive waste management facilities;
- Developing the plan for landscape mounding, having regard to the location of the Power Station, the existing landform and available space;

- Appropriately locating construction laydown areas within the remaining available space and in proximity to the construction areas they are intended to serve;
- Locating the Site Campus away from the main construction areas and within the available space; and
- Locating car parking areas adjacent to the main access, construction areas and Site Campus.

7.1.6 The above resulted in the final proposed layout of the main permanent and temporary components.

8 References

ID	Reference
RD1	The Planning Act 2008. 2008. [Online]. [Accessed: 22 January 2018]. Available from: https://www.legislation.gov.uk/ukpga/2008/29/contents.
RD2	Department of Energy and Climate Change. 2011. *The National Policy Statement (NPS) for Nuclear Power Generation (EN-6).* [Online]. [Accessed: 22 January 2018]. Available from: https://www.gov.uk/government/publications/national-policy-statements-for-energy-infrastructure.
RD3	Isle of Anglesey County Council, Gwynedd Council. 2017. *Anglesey and Gwynedd Joint Local Development Plan 2017.* [Online]. [Accessed: 22 January 2018]. Available from: http://www.anglesey.gov.uk/planning-and-waste/planning-policy/joint-local-development-plan-anglesey-and-gwynedd/.
RD4	Isle of Anglesey County Council. 2014. *New Nuclear Build at Wylfa: Supplementary Planning Guidance.* [Online]. [Accessed: 22 January 2018]. Available from: http://www.anglesey.gov.uk/business/energy-island/energy-island-news/new-nuclear-build-at-wylfa-supplementary-planning-guidance/123426.article.

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Appendix 5-1 Indicative layout of the main permanent components

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FIGURE A2-1

N
W E
S

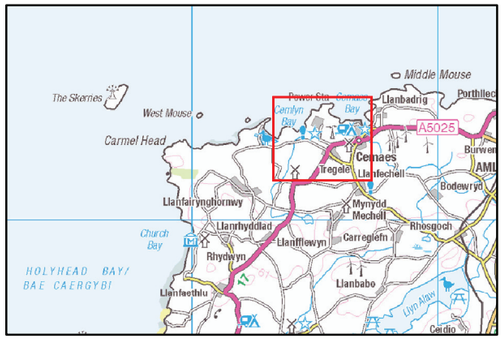
Legend

- Wylfa Newydd Development Area
- Power Station Site
- Existing Magnox power station
- Existing Magnox power station buildings
- A5025
- Existing and new road layout
- Settlements
- Ecology Mitigation Areas

Power Station

- Main plant
- Common plant
- Supporting facilities, buildings, structures and features
- Preferred location of decommissioning waste storage and processing facilities
- Combustion Installation Boundary
- Power Station internal road layout
- Marine off-loading facility and breakwaters
- Power Station fences
- Cooling Water System Outfall
- Car parking

*The Wylfa Newydd Development Area and the Ecology Mitigation Areas collectively encompass the Order Limits



Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL

Client

HORIZON NUCLEAR POWER

Project

WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title

INDICATIVE POWER STATION LAYOUT

Scale @ A3	1:12,500	DO NOT SCALE
Jacobs No.	60PO8077	
Client No.		

Drawing No.

60PO8077_DCO_VOL_A_02_01

0 50 100 200 300 400 500 metres

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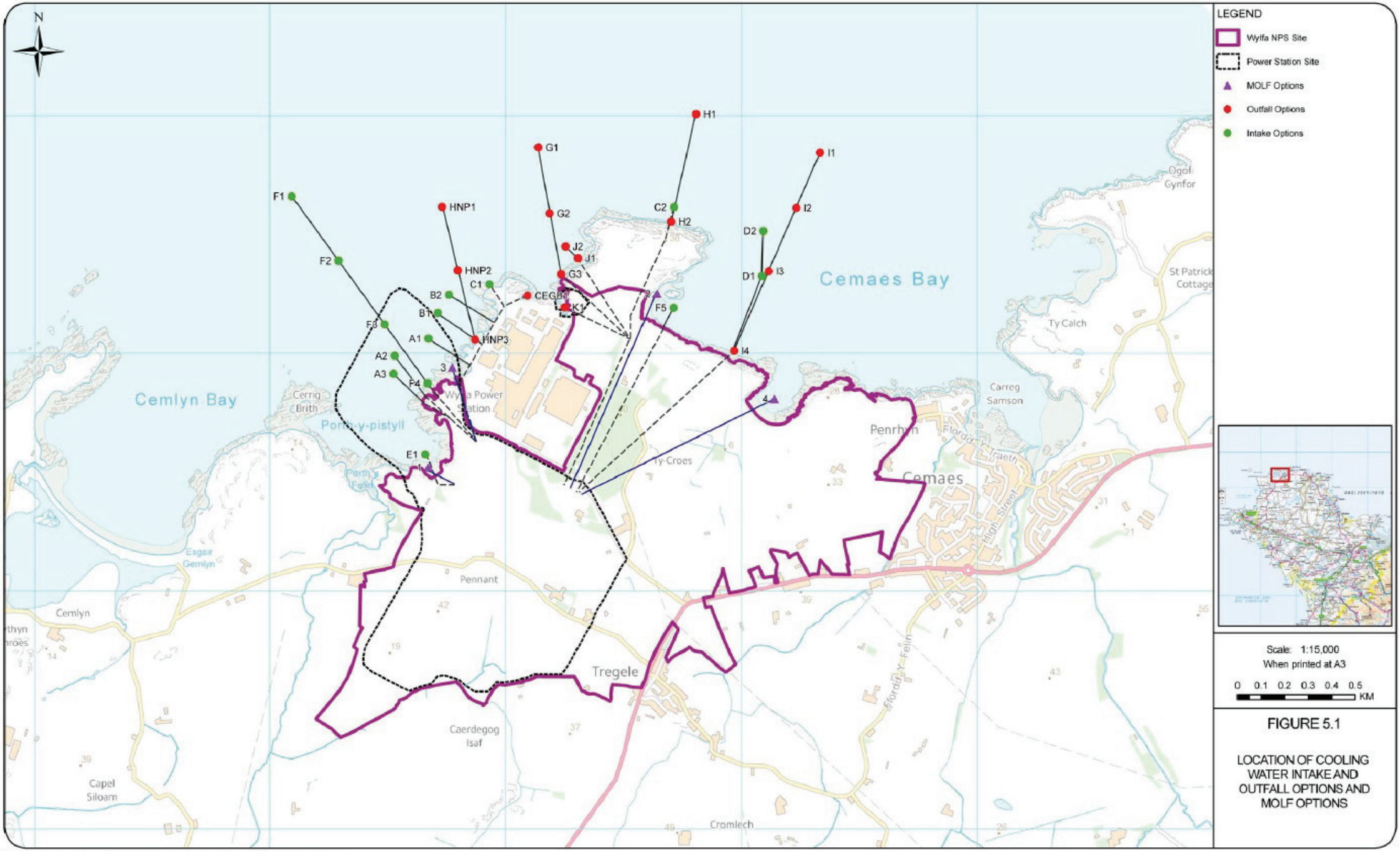
Appendix 5-2 Locations considered for the MOLF and CW intake and outfall



Appendix 5-3 Landscape mounding locations

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DO NOT SCALE

Millimetres 100 10 0

WYLFA HEAD

EXISTING SITE

CEMLYN BAY

A

CAMAES

B

D1

E

D

TREGELE

B1

C

Key:

- Available Site Area
- Wylfa Newydd Development Area
- National Policy Statement (NPS) Boundary

Drawing Status

Suitability

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Client

HORIZON NUCLEAR POWER WYLFA LTD

Project Title

Wylfa Newydd - Bulk earthworks Assessment & Preliminary Drainage Design

Drawing Title

Plan Showing land Available for Landform Design

Scale	Designed	Drawn	Checked	Authorised
N.T.S	SW	CM	DW	MW
Original Size	Date	Date	Date	Date
A3	07.07.17	07.07.17	07.0717	07.07.17

Drawing Number

Figure 10

Revision

6.0

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