HORIZON NUCLEAR POWER

WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Wylfa Newydd Project
8.2.3 Design and Access Statement
Vol 3: Associated Developments and Off-site Power Station Facilities (Part 2 of 2)

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ENERGY WORKING FOR BRITAIN

Design and Access Statement Volume 3

Appendix 1-3 Park and Ride Facility at Dalar Hir

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PART A: CONTEXT AND PRINCIPLES

1 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT
1.2 GENERAL CONTEXT
1.3 STRUCTURE OF THIS DOCUMENT
1.4 SITE SELECTION
1.5 STRATEGIC DESIGN BRIEF
1.6 DESCRIPTION OF THE PROPOSED DEVELOPMENT

Introduction

1.1 PURPOSE OF THE DOCUMENT

1.1.1. This Design and Access Statement (DAS) sets out the process of design evolution for the proposed Park and Ride facility at Dalar Hir.

1.1.2. As noted in Volume 1 (Application Reference Number: 8.2.1), Horizon has submitted detailed design drawings for approval and on an illustrative basis as part of its Development Consent Order (DCO) Application.

1.1.3. Detailed design drawings have been submitted for the Park and Ride for approval. Once approved, Horizon must undertake construction of the Park and Ride in accordance with the approved designs. However, in order to preserve flexibility, Horizon may seek approval to submit revised plans provided such plans are in accordance with the design principles in this document and the DCO parameters tables.

1.1.4. The design explained in Part B of this document is an illustrative example of how the scheme could be delivered in accordance with the parameters and the design principles.

1.1.5. This document forms part of Volume 3 of the DAS (Application Reference Number: 8.2.3), which is structured as follows:

- Volume 1 (Application Reference Number: 8.2.1) provides an overview of the entire Wylfa Newydd DCO Project including the Associated Development;
- Volume 2 (Application Reference Number: 8.2.2) relates to the Power Station Site; and
- Volume 3 (Application Reference Number: 8.2.3) relates to the Off-Site Power Station Facilities and Associated Development, including the Site Campus, Logistics Centre, Park and Ride facility and A5025 Off-line Highway Improvements.

1.1.6 The DAS forms part of a suite of documents which support the DCO application for the Wylfa Newydd DCO Project, as set out in Volume 1 of the DAS (Application Reference Number: 8.2.1).

1.2 GENERAL CONTEXT

1.2.1. The provision of a dedicated Park and Ride facility at Dalar Hir is a key part of Horizon's overarching transport strategy for the Wylfa Newydd DCO Project. It would assist in minimising travel demand and maximising opportunities to travel by sustainable modes. This has multiple benefits: reducing carbon emissions, reducing impacts on the amenity of local people and reducing potential traffic congestion.

1.2.2. The Dalar Hir Park and Ride facility (hereinafter referred to as 'Park and Ride') is to be provided to serve the Wylfa Newydd DCO Project for the duration of the Main Construction stage only. It is planned as a temporary facility that will be decommissioned and removed at the end of its approximately 10 year operating phase. It will provide a bus transfer facility to serve the peak of construction with up to 1,900 parking spaces for the following categories of workers:

- daily construction workers;
- long-stay parking for a proportion of construction workers resident at the Site Campus;
- Horizon construction management staff;
- Horizon operational staff (comprising an initial team which would be built up to full operational numbers by the end of the Main Construction stage); and
- facilities management staff for the various Associated Developments and Off-Site Power Station Facilities outside of the Power Station Site.

1.2.3. Figure 1 shows the location of the proposed Park and Ride, in the context of the Wylfa Newydd DCO Project sites. Figure 2 gives a visual representation of the Worker Transport Strategy.

1.2.4. For details of the site selection process undertaken for the Park and Ride, refer to the Site Selection Report, Volume 5 – Park and Ride (Application Reference Number: 8.24.5). For further detail relating to alternatives and design evolution, refer to the Environmental Statement, chapter F2 Alternatives and design evolution (Application Reference Number: 6.6.2).

1.3 STRUCTURE OF THIS DOCUMENT

1.3.1. This document is set out in two parts. Part A defines the 'design principles' with which the detailed design of the Park and Ride has to accord (based on an appraisal of the site context and design brief). Part B then provides an analysis of how the design has been developed in accordance with these principles and parameters (specifically addressing the key elements of good design identified in EN-1, EN-6 and TAN12).

1.3.2. Part A: Context and principles:

- Chapter 1 introduces the Park and Ride, sets out the design brief, operational and functional requirements, and describes how this document relates to Volumes 1, 2 and the rest of Volume 3 of the DAS.
- Chapter 2 summarises the existing physical context of the site. The chapter also reviews design and access related feedback from consultation events and explains how the proposed development has evolved in response.
- Chapter 3 defines the 'design principles' that the development will adhere to (having regard to the context set in chapter 2).

1.3.3. Part B: Design proposals:

- Chapter 4 explains how the detailed design proposed to be approved through the DCO is in accordance with the design principles.
- Chapter 5 explains how the proposed development could promote high levels of environmental sustainability.
- Chapter 6 sets out how the proposed development could demonstrate safety and security.
- Chapter 7 provides details relating to accessibility of the site including proposed details of inclusive access measures.
- Chapter 8 details proposed movement for all users, including car parking, servicing and highways.
- Chapter 9 outlines the post-operation strategy for the site.

1.3.4. Appendix A sets out the facility environmental design objectives and detailed commentary on how they may be met.

1.3.5. Appendix B sets out how the design principles may be met in the design proposals.

1.3.6. Appendix C sets out the documents referred to in this document.

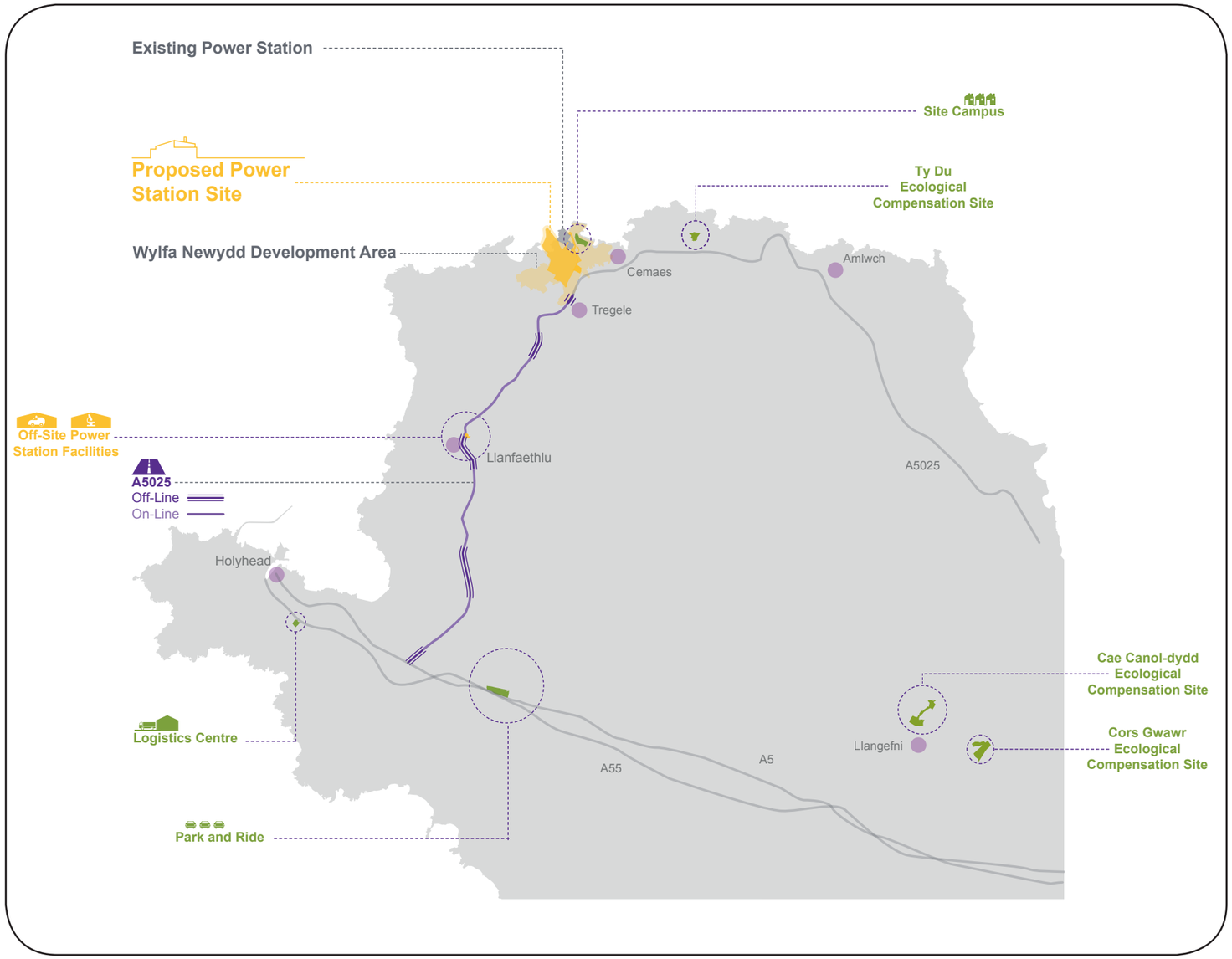


Figure 1 Dalar Hir Park and Ride within the context of the Wylfa Newydd DCO Project sites

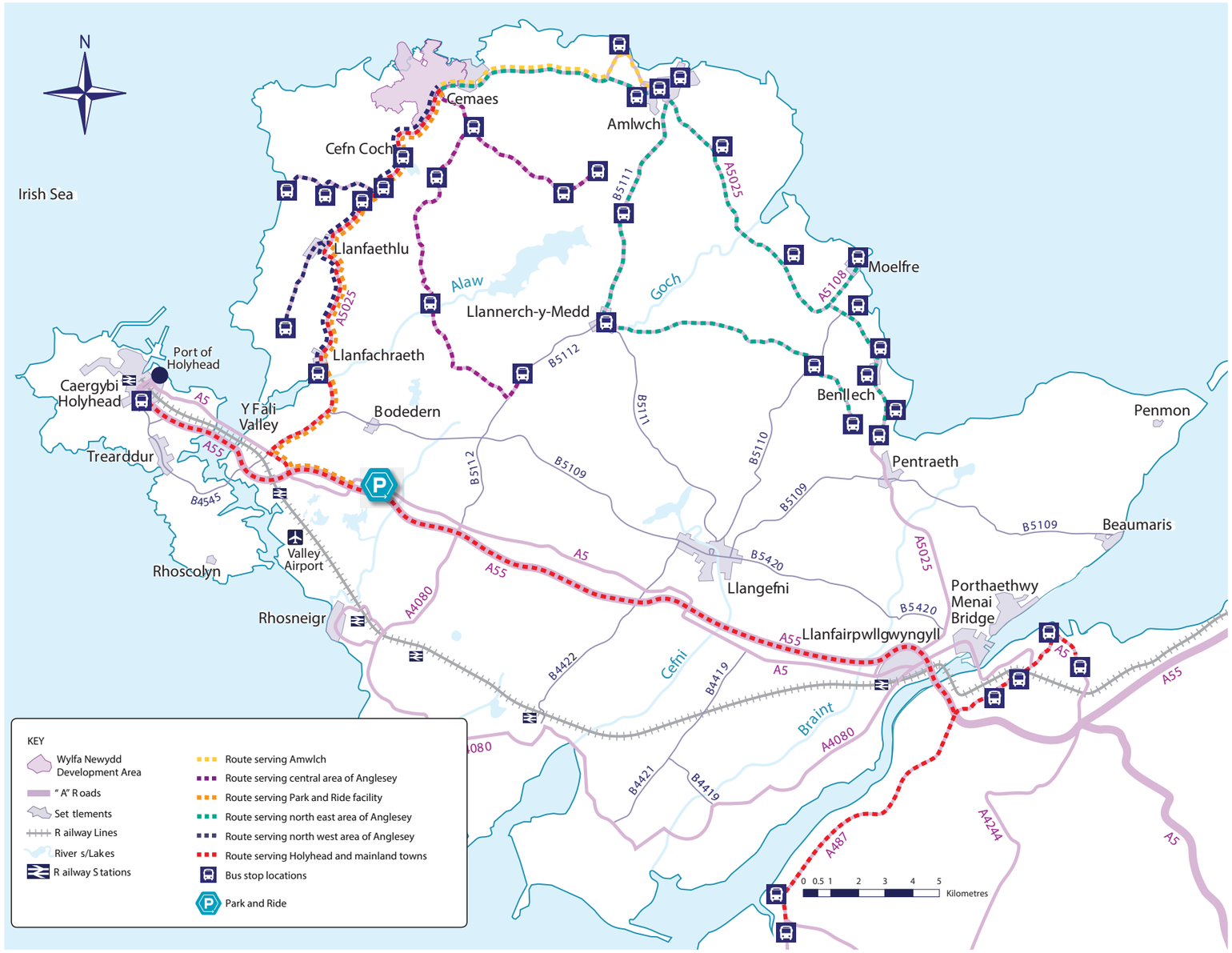


Figure 2 Worker transport strategy

1.4 SITE SELECTION

1.4.1. The proposed Park and Ride forms part of the Wylfa Newydd DCO Project to which this application for development consent relates. Provision of a Park and Ride facility is a key component of the Wylfa Newydd DCO Project's Integrated Traffic and Transport Strategy (ITTS), which is explained in Environmental Statement chapter C2: Traffic and Transport (Application Reference Number: 6.3.2). The ITTS is the strategy by which Horizon established its proposals for managing the transportation of materials and workers to the Wylfa Newydd Development Area, and proposed improvements to the local road network, which now form the A5025 Off-line Highway Improvements and A5025 On-line Highway Improvements.

1.4.2. The Site Selection Report, Volume 5 (Application Reference Number: 8.24.5) explains the site screening and selection process for the Park and Ride. This involved a four stage methodology, including the identification of a 'long list' of potential sites (using a data sources provided by the Anglesey and Gwynedd Joint Planning Policy Unit), with broad criteria then applied to consider the suitability of the sites, such as size, environmental constraints and proximity to the local road network. These sites were then assessed in more detail using finer criteria. In particular, the sites have been scrutinised according to the following:

- the specific operational prerequisites for the Park and Ride, in relation to locational and size requirements beyond the stage one criteria; and
- whether the existing or proposed land use of the site would be consistent with planning policy.

14.3. The recommendation in the Site Selection Report was that in consideration of all impacts and with regard to planning policy, the proposed site at Dalar Hir is justified and there are no more appropriate alternatives.

1.4.4. The Park and Ride site is located close to Junction 4 of the A55 and abuts the northern boundary of the A5. The north, east and west of the site are characterised by open countryside. The site is shown in figure 4.

1.4.5. The Park and Ride would support the Main Construction stage of the Power Station. It would allow for secure vehicle parking, and the controlled transportation of workers, by bus, to the Wylfa Newydd Development Area, reducing the number of individual car trips travelling on the local road network.

1.4.6. It is anticipated that the Park and Ride would be used primarily by construction workers resident in the southern and western parts of Anglesey, as well as those commuting from the mainland. It would not be available for use by the public.

1.4.7. The Park and Ride consists of:

- secure parking for up to 1,900 cars which includes 10 disabled car spaces, as well as spaces for up to 55 minibuses, 35 motorbikes and 25 bicycles;
- a bus waiting pick-up and drop-off zone for up to 15 buses with additional parking for eight buses;
- a bus transport facility building to provide transport information, a waiting area, welfare facilities, a bus driver canteen and management office facilities;
- access to the site via the existing A55-A5 junction northern roundabout (Junction 4);
- Sustainable Urban Drainage Systems (SuDS) including permeable paving used where possible to improve drainage and facilitate the site's return to agricultural use;
- landscaping and screen planting for visual mitigation;
- other ancillary development, signage, fencing, lighting, closed circuit television (CCTV) and utilities; and
- a stream crossing at the east end of the site.

1.4.8. The DAS assumes that the Park and Ride would be fully constructed, although the nature of the layout would allow a phased delivery of the parking spaces.

1.4.9. Following construction of the Power Station, the Park and Ride would be removed and the land restored to its existing use (agricultural land), preserving the enhanced hedgerows and areas of habitat created along the Nant Dalar Hir and its tributaries. Reinstatement would seek to restore the original field pattern.

1.5 STRATEGIC DESIGN BRIEF

1.5.1. Horizon's overarching goals and objectives for the Wylfa Newydd DCO Project are set out in Volume 1 of the DAS (Application Reference Number: 8.2.1).

1.5.2. Horizon's visions and objectives include an aim to,

"build on the legacy of the Existing Power Station, and help to create a positive legacy for Anglesey; thinking about each significant investment and how it can create a positive future for the area, where appropriate".

1.5.3. For the Associated Development sites, Horizon's proposals should, having regard to the temporary nature of development:

- provide the necessary facilities to ensure the delivery of the Power Station that meets the urgent need for new nuclear power as early as possible in a safe and efficient manner;
- minimise visual impact as far as possible;
- respect local communities, and minimise impact on them as far as possible, particularly those very close to the Associated Development sites and;
- help to create a positive legacy for Anglesey, thinking about each significant investment and how it can create a positive legacy for the area, recognising that this will not always involve retaining the buildings on the Associated Development sites.

1.5.4. This section sets out the specific requirements in relation to the Park and Ride based on these principles.

SITE BRIEF

1.5.5. The design has been developed in accordance with Horizon's initial requirements and applicable changes during the course of the Concept Design phase. The following requirements have informed the approach to the design.

- Assessment of workforce requirements and locations has identified a proportion who would be accommodated both on and off the island of Anglesey in private accommodation. Part of the proposed strategy is to transport these workers to the Wylfa Newydd Development Area on a daily basis by bus. The proposed Park and Ride must allow for secure vehicle parking and transportation of the workers to the Wylfa Newydd Development Area by bus in a controlled manner.
- The proposed site layout for the Park and Ride must provide secure parking for vehicles, including staff parking as detailed in table 1 and provide a bus waiting, pick-up and drop-off zone for up to 15 buses (this ultimately depends on shift patterns and final parking numbers and may be up to 20 buses maximum). The design should also provide a bus transport facility building providing transport information, welfare facilities, a bus driver canteen, cycle store and management office facilities.
- In the event that the maximum bus numbers envisaged are realised, the additional buses would be accommodated either in spaces allocated for bus parking (bus storage area), or they may wait along the entrance road within the bus waiting, pick-up and drop-off zone for a stand to become free.

Table 1 Vehicle numbers

	PRIVATE CAR SPACES	STAFF CAR SPACES	ACCESSIBLE SPACES	MOTORCYCLE SPACES	MINI BUS SPACES	BUSES
Car Park 1	573	0	0	35	53	0
Car Park 2	326	0	0	0	0	0
Car Park 3	216	0	0	0	0	0
Car Park 4	182	0	0	0	0	0
Car Park 5	501	0	0	0	0	0
Staff Car Park	0	32	10	0	0	0
Bus pick-up and drop-off zone	0	0	0	0	0	15
Bus storage area	0	0	0	0	0	8 (out of the 15)
Totals	1,798	32	10	35	53	15

1.6 DESCRIPTION OF THE PROPOSED DEVELOPMENT

FUNCTIONAL AND OPERATIONAL REQUIREMENTS

1.6.1. The layout of the Park and Ride has been developed to meet a series of requirements, driven by the site constraints and the functional constraints of the numbers of vehicles, buses and transport user flows, from the transport brief.

1.6.2. The key functional and operational requirements are listed below. Table 2 shows information for the operational period.

1.6.3. A typical transit for a worker driving to the Park and Ride is anticipated to involve the following steps:

1) Arrival at the site via an entrance off or close to the A55-A5 Junction 4.
2) Car recognised by the automatic number plate recognition (ANPR) system, barriers open and car is admitted (in the case where a vehicle is rejected from entry, there would be an additional lane allowing the vehicle to exit the flow and exit the site).
3) Worker parks at one of the parking zones in accordance with the nature of their trip.
4) Worker walks to the bus pick-up / drop-off zone via a pedestrian walkway.
5) Worker may use the toilet/wash amenities within the bus transport facility building.
6) The worker boards the bus to the Wylfa Newydd Development Area after satisfying necessary security requirements (e.g. the displaying of a pass to the driver).
7) The bus proceeds to the Wylfa Newydd Development Area where a full security check is carried out to allow the worker access to the Main Construction site.
8) At the end of a shift, the worker proceeds to the bus which travels back to Dalar Hir.
9) On arrival, the worker proceeds on foot from the bus pick-up / drop-off zone to his/her car.
10) Worker drives vehicle out through southern exit onto A5.

1.6.4. Workers staying at the Site Campus and arriving outside of typical shift change periods can also be collected at bus stops along the site spine road.

1.6.5. It is anticipated that buses travelling to the Wylfa Newydd Development Area from the Park and Ride would access the A55 directly at Junction 4, travelling eastbound to Junction 2 and exiting to the A5025 northbound. From here, they would progress directly to the Wylfa Newydd Development Area to drop-off workers. The return journey would be the reverse of this.

1.6.6. The bus transport facility building provides a facility management function as well as bus driver and user welfare amenities. The building would provide information/advice to enable efficient flow of pedestrian movement and welfare facilities for all persons.

1.6.7. Visitors would have to register 24 hours in advance in order to gain access to the car park. Therefore, the building would serve to sign in visitors at a security desk and provide them with a relevant pass to gain access to a bus.

Table 2 Operational information

ITEM	INFORMATION
Operational programme	Up to 10 years.
Size of operational workforce	The building would accommodate up to 15 bus drivers and up to 10 members of staff. The staff would generally be split between security, control room and management personnel. An allowance has been made in the site staff parking for some bus drivers to park on-site on the assumption that some buses may be left on-site overnight.
Shift patterns	The site would be operational for day shift and night shift workers. Park and Ride staff would thus work shift patterns to cover 24/7 operation of the facility. Construction workers in the Wylfa Newydd Development Area would work an 11-day fortnight with three days off. Eleven-day fortnights would be staggered, with half the workforce off one weekend and the other half off the following weekend.
Operational vehicles	Designed for 15 buses (20 maximum, see Section 1.6 Site brief). Diesel-hybrid or electric. Vehicles used as shift patterns require. Buses may be parked on-site overnight. Assumed bus size is (l x w x h): 15.0m x 4.2m x 2.5 m (plus mirrors). Provision in the design has been made for electric bus charging points. Buses would only be those dedicated buses taking workers to/from the Wylfa Newydd Development Area and the Site Campus.
Traffic movements of staff to and from site	Typically 15 peak shift buses total. Assume an average of 50 persons passenger load in a 54 seat bus.
Movement of staff to welfare amenities	All welfare facilities would be located in the bus transport facility building.
Goods deliveries	General deliveries to the bus transport facility building for consumables etc.
Access	Access would be generally from the existing northern junction roundabout to the west of the site.
Parking	Refer to table 1 and drawings.
External lighting	External lighting to all car parks, bus waiting pick-up and drop-off zone, entrance(s), exit(s) and pedestrian walkways.

TRAFFIC, TRANSPORT AND HIGHWAYS

1.6.8. The following roadworks are proposed at the west of the site: modifications to the existing A55-A5 junction northern roundabout, creating a new entrance and exit to the Park and Ride off this roundabout.

1.6.9. The design proposes to give priority to buses exiting the facility over the cars and to separate the exiting buses from the potential high volumes of traffic entering the facility. Buses would exit the site via the new exit onto the A55-A5 junction northern roundabout.

1.6.10. Northbound traffic up the Bodedern road and southbound traffic heading towards the junction would continue to use the existing roundabouts. The roundabout gives priority to traffic turning into the Park and Ride, avoiding any queues and also prioritises the minimal southbound traffic on London Road.

1.6.11. The proposal for cars to exit the facility onto the A5 from the south-west mitigates the following potential problems caused by cars exiting onto the London Road onto the existing junction roundabout:

- the exit road would involve use of the northern buffer zone;
- the extra road area would reduce the number of car spaces available; and
- there would be no room for cars to exit directly onto the existing roundabout.

1.6.12. Cars exiting onto the A5 is the viable solution. Exiting buses would have priority over exiting cars at the A55-A5 northern junction roundabout. The strategy is for free flow into and out of the Park and Ride from and onto the A5 minimising impact on present users.

1.6.13. Within the site, the building shall require access for delivery of goods via light transit van sized vehicles. There would be access to the building for emergency firefighting vehicles and good access for building façade maintenance.

1.6.14. The facility design would allow access that can be maintained at all times, both for continued access in the event of a vehicle breakdown and for emergency access to and from the site if required. This has led to the following design refinements:

- provision of a dual lane road through the site;
- reviewing possible alternative entrances to site (e.g. entering from the southern exit) and tracking around the site in reverse direction with roads refined to suit;
- provision of an additional exit from the bus transfer area (i.e. so that buses can leave through the southern exit if required); and
- provision of emergency exit lanes from each of the car park zones.

2 CONTEXTUAL ASSESSMENT

2.1 PHYSICAL ASSESSMENT
2.2 POLICY ASSESSMENT

Contextual assessment

2.1 PHYSICAL ASSESSMENT

SITE LOCATION

2.1.1. The site proposed for the Park and Ride at Dalar Hir is located close to Junction 4 of the A55 and abuts the northern boundary of the A5. Access to the A5025 is provided via the A55. The north, east and west of the site are characterised by open countryside. The site as shown in figure 3 includes the areas proposed for the Park and Ride.

2.1.2. The order limits occupy 19.5 hectares of land. The area of land under consideration for the facility is approximately 15.61 hectares of land within this footprint. This site is approximately rectangular on an east-west orientation, nominally 800m x 200m, thinning to 50m wide at the western tip.

2.1.3. The Dalar Hir site appears generally flat with an underlying fall from north to south and east towards the A5. The ground rises gently at the western and eastern sides of the site, with drier ground reflected in denser planting belts. The Nant Dalar Hir and tributary flows from north to south, through the eastern section of the site, before flowing under the A5.

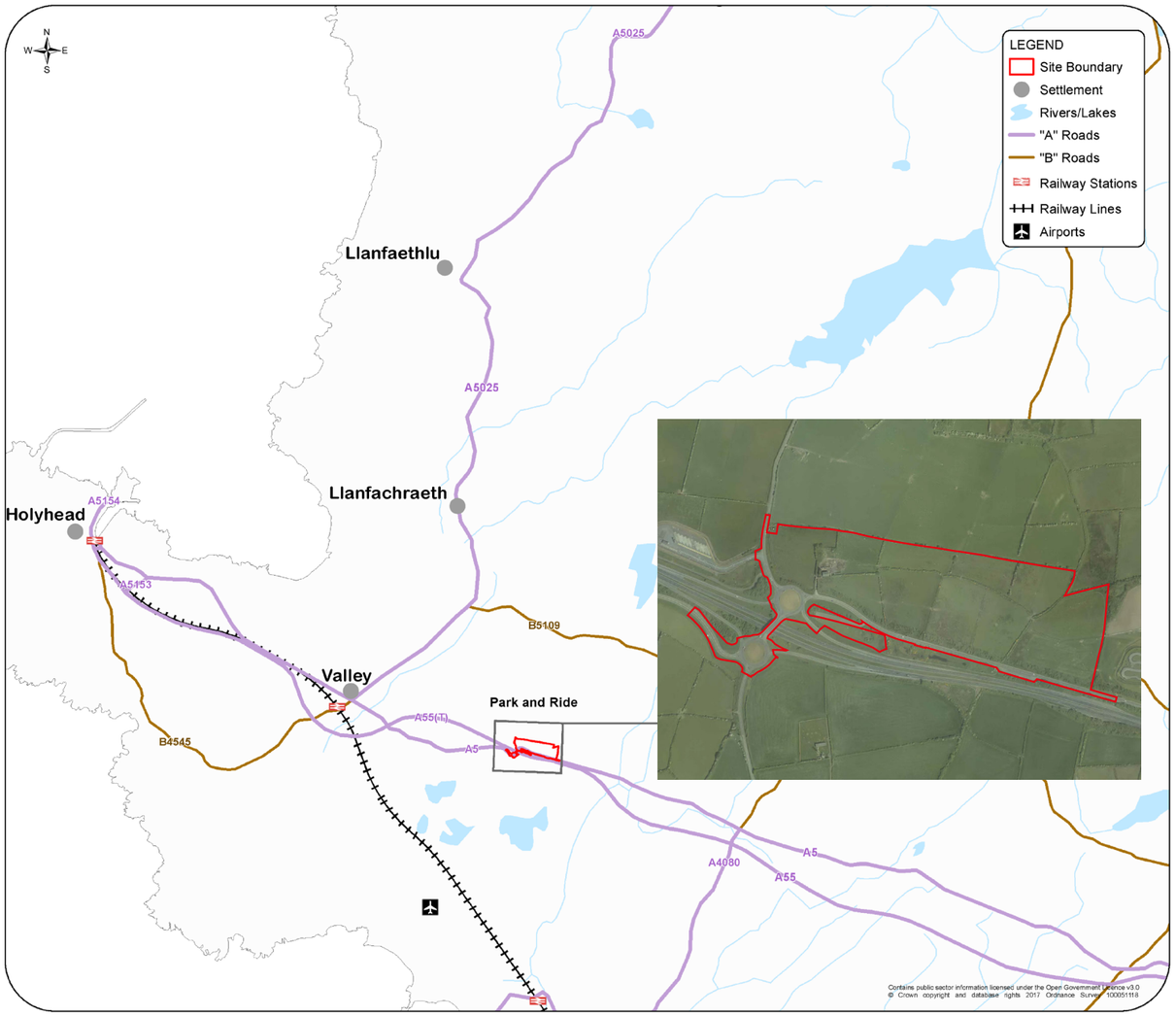


Figure 3 Site location

EXISTING LAND USE

2.1.4. The site is currently in agricultural use, bordered by Cartio Môn Go Karting centre to the east, Minffordd Road to the west and the A5 and A55 to the south. To the north, the site is open agricultural land, rising up and overlooking the site separated by a fence and hedge line that is synonymous with the surrounding field pattern.

2.1.5. The former farm buildings within the site have been removed with the exception of one barn building, which would be removed prior to the site being occupied. The landowner has recently planted belts of dense tree and shrub along the boundary with the A5, helping to contain the site visually and physically.

2.1.6. The aerial photograph (figure 4) show the predominantly agricultural site within the surrounding context, bringing out the strength and value of the field pattern and value of the new dense planting along the boundary with the A5 to contain and protect the site from intrusions of the A5 and A55.

HERITAGE

2.1.7. The site comprises semi-improved fields and relict field boundaries and had a farm at the western end. There are seven archaeological assets recorded on-site including post-medieval field boundaries and a wall along the southern boundary between the site and the A5. There are two records of non-coal mining activities on-site. These are registered as vein-mineral mines which were likely to have had only minor or rare usage.

TOPOGRAPHY

2.1.8. The Dalar Hir site appears generally flat with an underlying fall from the north to the south towards the A5. The defining feature of the site is the Nant Dalar Hir. The tributary flows from north to south, through the eastern section of the site, before flowing under the A5. Either side of the Nant Dalar Hir in the eastern and central parts of the site, the ground rises gently with the drier ground noticeable by the more established planting belts and areas of improved grassland. The landform in the western part of the site has a more defined sloping aspect, rising from the north-west corner of the site to the existing site entrance and back down where it levels out to gently sloping central part of the site.

GEOLOGY

2.1.9. The site is underlain by bedrock at shallow depth comprising mica schist and psammite from the late Pre-Cambrian low grade metamorphic New Harbour Group, which are bisected by a north-west-south-east striking fault. Bedrock is overlain by Devensian aged predominately glacial till with localised lacustrine, loess and alluvial cohesive deposits, with historical boreholes indicating the possible presence of made ground.

SOILS

2.1.10. The soils on-site are classified as slowly permeable with seasonally wet loams and clays.

SURFACE/GROUND WATER

2.1.11. There is an unproductive aquifer on-site within the superficial deposits; this is classed as insignificant. There is also a secondary aquifer within the bedrock. There is one secondary river and nine tertiary rivers on-site.

FLOOD RISK

2.1.12. The Park and Ride site is classified on Natural Resources Wales' (NRW) surface water mapping as being within flood zone A, which suggests superficially that there is considered to be little to no risk of fluvial or tidal flooding to the site. However, NRW's surface water mapping does indicate that some parts of the site are at risk from surface water flooding.

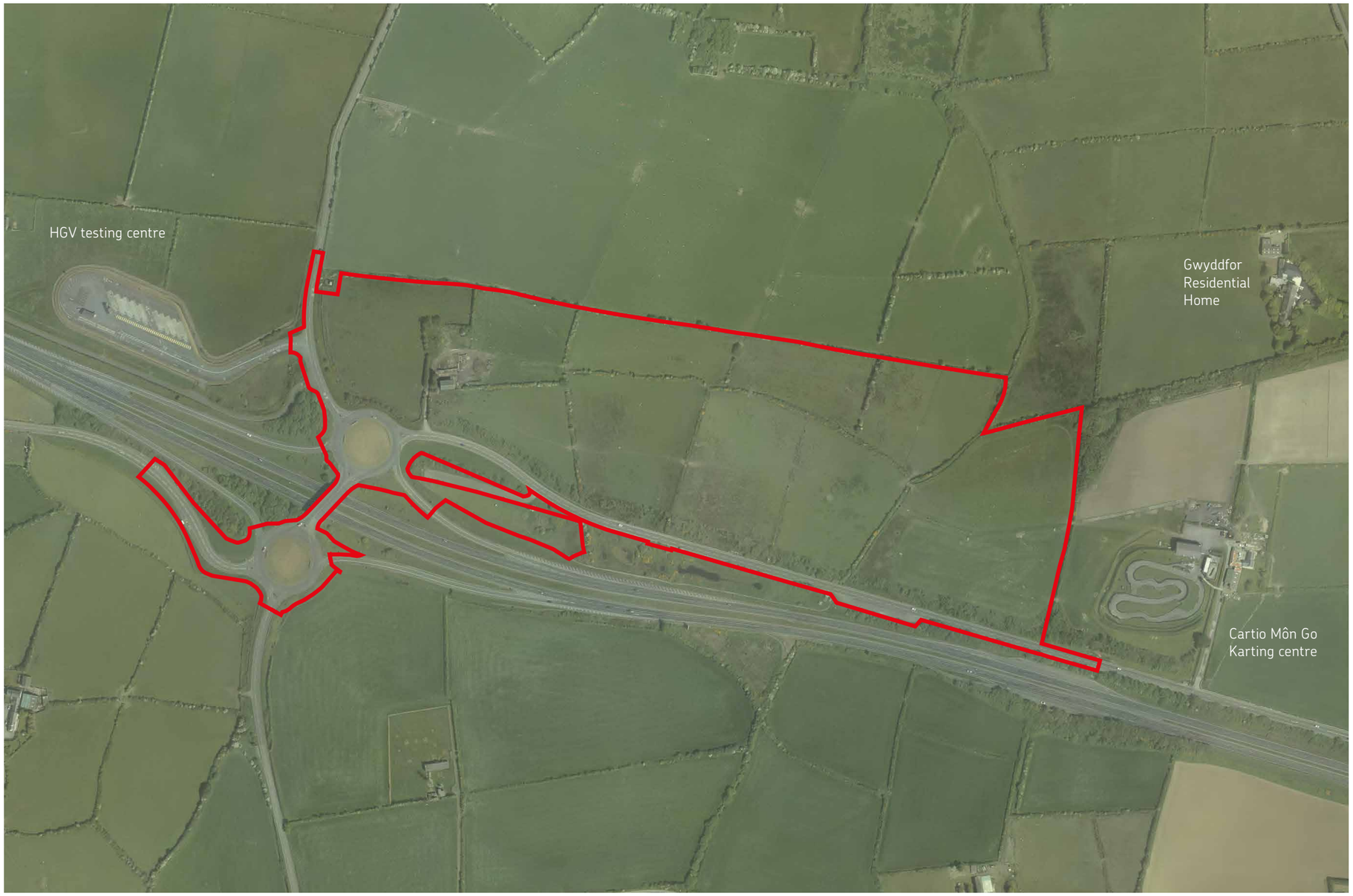


Figure 4 Aerial image

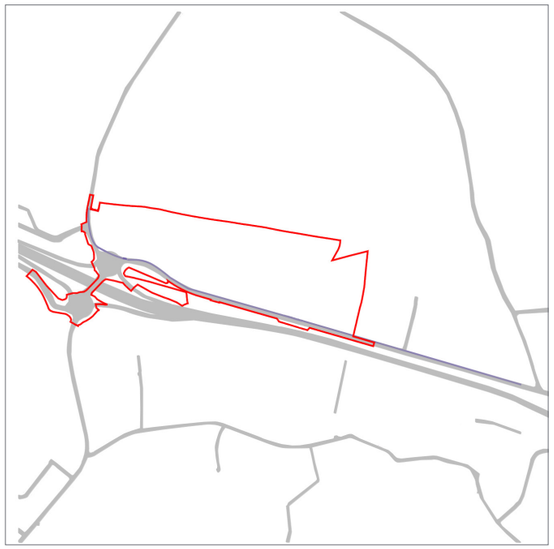


Figure 5 Landscape designations

No designation

Order Limits (all figs)

LANDSCAPE DESIGNATIONS

2.1.13. The site was located within the Anglesey Special Landscape Area (SLA), as designated in the Ynys Môn Local Plan (IACC, 1996). This was, however reviewed in 2012 and six specific SLA designations proposed rather than the island-wide designation. This is reflected in the Joint Local Development Plan (JLDP) (IACC and Gwynedd Council, 2017) (replacing the Ynys Môn Local Plan). The Park and Ride is not located in one of these six new SLA designations.

2.1.14. Figure 5 shows that the site has no current landscape designation.

Figure 6 Landscape character

LCA5

LCA17

LANDSCAPE CHARACTER

2.1.15. A review of published landscape character information has been carried out to gain an understanding of the nature and value of the landscape character of the area, including the landscape character of the Anglesey Area of Outstanding Natural Beauty (AONB), the Anglesey-wide SLA.

2.1.16. The majority of the Dalar Hir site is located within the Landscape Character Area LCA5: North West Anglesey, as defined in the Isle of Anglesey Country Council Landscape Strategy (IACC, 2011). The area is described as having an extensive drumlin field pattern, resulting in a classic 'basket of eggs' description for the landscape. The hillocks run south-west to north-east and the majority have a land cover of improved grassland. There are also areas of marsh, scrub and rocky outcrops at Mynydd y Garn and Mynydd Mechell. Wind farms form a distinctive feature in the landscape. The south-east portion of the site is located within LCA17: West Central Anglesey. This area is described as a large area of the rural heartland of Anglesey. The topography is generally undulating with a number of rocky outcrops that typify the landscape of this part of the island.

2.1.17. Figure 6 depicts the LCAs in relation to the proposed site.

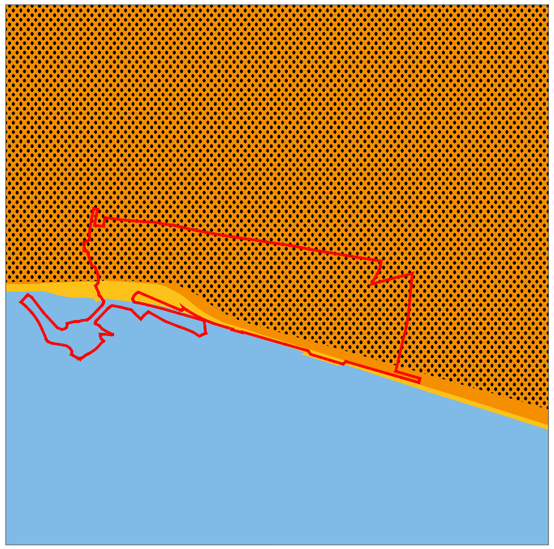


Figure 7 LANDMAP classifications

LANDMAP

2.1.18. The site is identified within the LANDMAP Historic "Fieldscape Central East Môn" and Visual and Sensory Aspect Area "North-west Drumlins".

2.1.19. Figure 7 depicts LANDMAP areas applicable to the Park and Ride site.

Historic - Fieldscape Central East Mon: A large, disparate area, which is essentially rural in nature and occupies most of the inland Isle of Anglesey.

Visual and Sensory - North West Drumlins: Basket of eggs glacial landscape of smooth oval hillocks with damp hollows. Land cover of medium sized, rolling to undulating, pasture fields with hedgerow boundaries.

Habitats - Farmland West Anglesey: An area of improved grassland dominated farmland.

Visual and Sensory - Caergeiliog Craggy Lowlands: Area of low-lying land south of the A55 with small scale fields and twisting lanes which are in contrast to the A55 and to RAF Valley.

Figure 8 Key views

KEY VIEWS

2.1.20. The site sits within a predominantly flat open landscape with wide-ranging views to and from the site. The gentle topography of the site is more noticeable when viewed from the Gwyddfor Residential Home and Cartio Môn Go Karting centre, as it rises to meet the junction of the A55 and A5. The junction between the A5 and the A55 is particularly prominent in this largely open landscape during the day and when lit at night.

2.1.21. Both these roads are highly visible on the southern boundary of the site, with the A55 marking the southern limit of the rolling drumlin landscape with the smaller field patterns of the low-lying land to the south. It is from the A55 that key views into the site would be experienced by travellers when approaching from the east and west.

2.1.22. The direction of the key views is shown in figure 8 and the views are illustrated in figure 9.

1. View from east over the Dalar Hir site from Gwyddfor Residential Home and Cartio Môn Go Karting centre.
2. View from the A55 travelling east and west.
3. View from Junction 4 on to the A5.
4. View from the south over the Dalar Hir site.

Figure 9 Panorama photographs (View 1 and View 2)

Figure 9 Panorama photographs (View 3 and View 4)

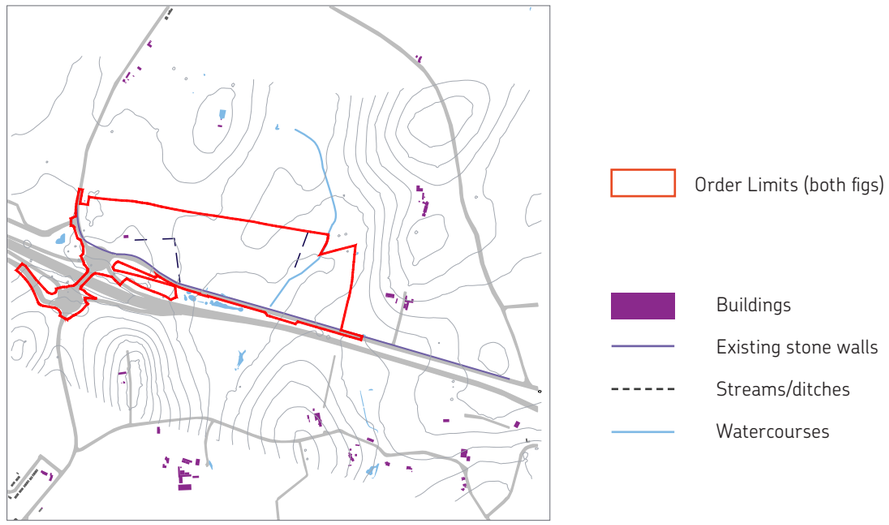


Figure 10 Landscape features

LANDSCAPE FEATURES

2.1.23. The site consists of irregular field patterns with hedge and stone walling defining the boundaries.

2.1.24. The site is located along the A5 with close proximity to the A55-A5 junction. The remaining agricultural building would be removed prior to construction of the Park and Ride; however, the access road to its location from the A5 would remain in place.

2.1.25. Figure 10 depicts applicable landscape features.

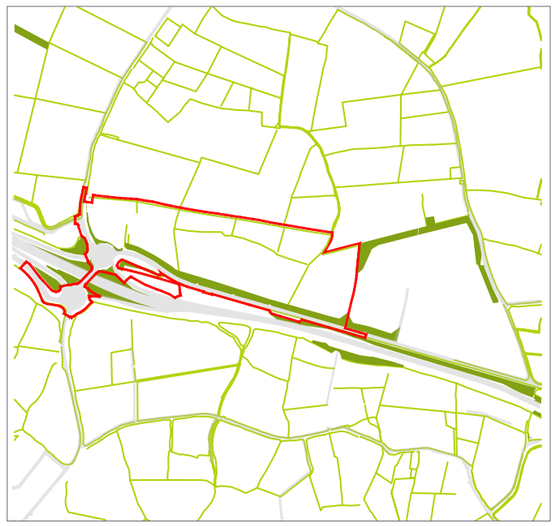


Figure 11 Woodland and vegetation

2.1.26. The site is set within an open rural landscape consisting primarily of semi-improved grassland, marshy grassland with hedgerows and young plantation woodland on the southern and eastern boundaries. Of particular interest is the Nant Dalar Hir that flows south through the site, under the A5 and A55, to the Llyn Traffwll Site of Special Scientific Interest (SSSI).

2.1.27. A habitat survey, which is detailed in the Environmental Statement chapter F9 - Terrestrial and freshwater ecology (Application Reference Number: 6.6.9), has informed the assessment of the existing vegetation within the site and has identified that the plantation woodland and hedgerow habitat have the potential to provide greater biodiversity within the site.

2.1.28. The hedges on-site were part of a hedge bank system and, while predominantly intact are limited in species and had few tree species present, with the greater diversity west of the Nant Dalar Hir on the slightly higher ground.

2.1.29. There are two areas of plantation on the eastern and southern boundaries. They are both approximately eight to 10 years old and made up with similar species, although the southern boundary included some additional spindle (*Euonymus europaeus*), crack willow (*Salix fragilis*) and English oak (*Quercus robur*). The planting has had varied success and in some areas the trees have either died or are stunted.

2.1.30. Figure 11 depicts current woodland and vegetation present.

SITE HISTORY

2.1.31. The site comprises predominately previously undeveloped agricultural land. Of a small cluster of buildings making up a former farmstead on the west of the site, only the ground floor slab of a previous house, with an access road from the A5, remains.

2.1.32. From a review of historical map data, the site comprises semi-improved fields and relict field boundaries.

2.1.33. There are seven archaeological assets recorded on-site (all non-designated) including post-medieval field boundaries and a wall along the southern boundary between the site and the A5. There are two records of non-coal mining activities on-site. These are registered as vein-mineral mines which were likely to have had only minor or rare usage. A farm building to the west of the site has been earmarked to be demolished prior to the construction of the Park and Ride.

SURROUNDING AREA

2.1.34. There is a waste treatment site 250m south-east of the site boundary, which is recorded as a waste transfer station. There are also two Environment Agency licensed waste sites within 1km of the site boundary. There are two current industrial sites within 50m of the site boundary just outside the north-west corner; these are recorded as gas features. There is one ground working area within 50m of the site boundary to the south named Dalar Hir Pit: a surface mineral works that has now ceased usage.

2.1.35. There is one designated SSSI within 1km of the site boundary; Llyn Traffwll, a small shallow lake supporting wildfowl. There is a further SSSI within 2km of the site boundary; Llynnau y Fali, a series of small shallow lakes supporting a variety of aquatic flora and fauna. One of the series of lakes, Llyn Dinam, is a designated Special Area of Conservation.

2.1.36. There is a go-kart centre adjacent to the eastern boundary. There is an HGV testing centre to the western boundary on the other side of the north to south section of the A5. There is a residential care home approximately 250m to the north-east of the site boundary. There are a number of ponds located to the south of the site between the A5 and the A55. Views of the surrounding area are shown in Figure 12.

Figure 12 Surrounding area

ENVIRONMENTAL DESIGN OBJECTIVES

2.1.37. As a result of environmental assessment work and associated surveys, a list of environmental design objectives (EDOs) have been developed for the Park and Ride which have informed the design principles. Appendix A lists the EDOs and provides detailed commentary on how the EDOs could be met through the design process, by the proposed design, during the construction, operation and decommissioning phases as applicable. The EDOs have been informed by the environmental constraints outlined below.

ENVIRONMENTAL CONSTRAINTS

2.1.38. There are a number of environmental constraints (figure 13) on the site which are relevant to the development of a masterplan for the Park and Ride. These constraints include:

- Hedgerows along the northern boundary and within the site. The design has taken cognisance of existing field boundaries and boundary wall. Existing hedges are to be retained where possible.
- A stone wall along the southern boundary. This can be retained in the design, with openings for pedestrian/vehicular access.
- The Nant Dalar Hir and tributary. A 15m buffer zone to the stream can be achieved. The drainage design considers the existing water flows and quality.
- Various wet ditches and water bodies to the south of the site. Buffers as indicated on the constraints drawing (figure 13) can be achieved.
- An opportunity for mitigation planting inside the southern boundary.
- Protected species and associated buffer zones are indicated in the north of the site.
- Surface water flooding. The design should consider storage ponds and installation of a granular sub-base to allow surface flows in permeable car park areas to permeate to the below-ground water storage.

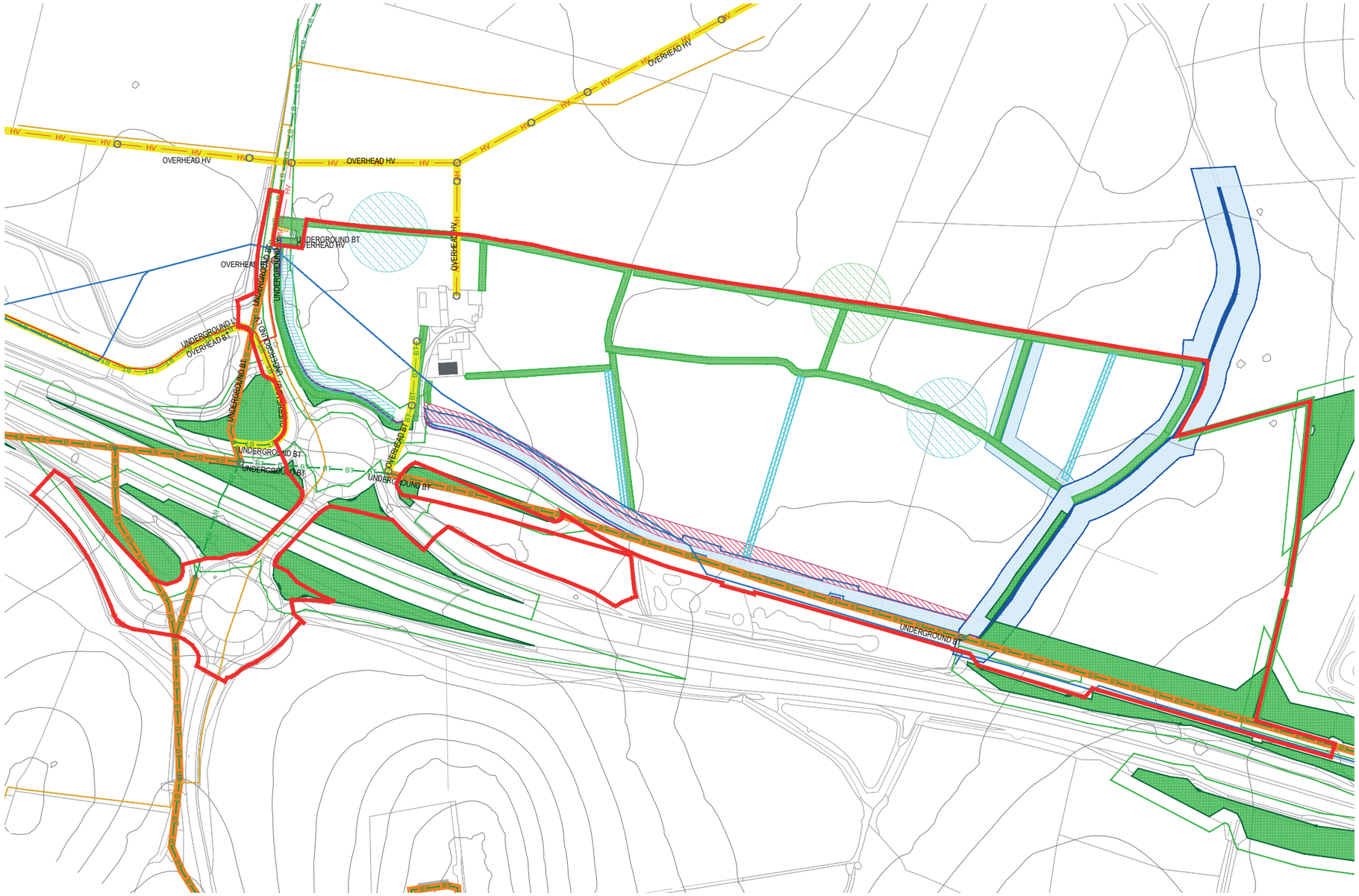


Figure 13 Environmental constraints

2.2 POLICY ASSESSMENT

2.2.1. Planning policy provides a key component of the context for the Wylfa Newydd DCO Project and its constituent parts. Volume 1 of the DAS (Application Reference Number: 8.2.1) gives an overview of national, regional and local planning policy, where they are relevant to the determination of the DCO. For the purposes of the DAS, this focuses on policy relating to the principle of development (established in the NPSs) and those that relate specifically to design and access considerations. The Planning Statement (Application Reference Number: 8.1) provides a full analysis of all relevant planning policy.

2.2.2. The relevant National Policy Statements (EN-1 and EN-6), form the primary basis for decisions. These firmly establish the principle of the need for new nuclear power, and that this need is urgent.

2.2.3. Development plan policy and guidance provides further layers of policy support for principles of good design, accessibility and sustainability. This includes Supplementary Planning Guidance (SPG) and the JLDP which specifically relates to the Wylfa Newydd DCO Project. Whilst the NPSs form the primary basis for decision making for the DCO, these policies may be considered important and relevant.

2.2.4. The Park and Ride site is not subject to any specific land use designations in the development plan. It is also located outside of the AONB and any of the SLA designations. The land that would be used for the construction of the Park and Ride has been classified as Grade 3b (moderate quality).

2.2.5. The Park and Ride is in accordance with Strategic Policy PS4 of the JLDP as it will improve accessibility to the Power Station Site and will change travel behaviour of the construction workers by ensuring that rather than many individual trips to site being undertaken, the journeys can be consolidated through the use of buses and therefore cause less impacts on the A5025.

2.2.6. The supporting text to Policy TRA1 of the JLDP confirms that the Councils will work with the promoter of the Wylfa Newydd DCO Project to develop an appropriate scheme of transport solutions to mitigate the effects of the construction and operation of the new Power Station. This includes the development of park and ride schemes to control the numbers and timing of traffic movements to the Wylfa Newydd Development Area (paragraph 7.1.44).

2.2.7. Policy GP14 of the New Nuclear Build at Wylfa: SPG (2014) confirms that long distance travel to the Power Station Site should be reduced through the provision of a Park and Ride.

3 PRINCIPLES OF PROPOSED DEVELOPMENT

3.1 OBJECTIVES
3.2 CONSULTATION AND DESIGN EVOLUTION
3.3 PARAMETERS FOR IMPLEMENTATION
3.4 DESIGN PRINCIPLES

Principles of the proposed development

3.1 OBJECTIVES

3.1.1. This chapter explains how the operational requirements and analysis of the site context have been developed through design evolution, with regard to Pre-Application consultation. This has informed a series of 'design principles' which will control the detailed design of the Park and Ride in the event that Horizon no longer wish to proceed with the submitted detailed design, alongside the parameters set in the DCO parameters tables.

3.1.2. The Park and Ride would be in operation only for the duration of the construction of the Power Station and restored to its current use in accordance with the objectives set out in the Ynys Môn Landscape Strategy and in the LANDMAP classifications.

3.1.3. The concept for the facility is to place the parking areas and transfer building sensitively into the landscape, with minimum disturbance to the key landscape and environmental features that reflect the distinctiveness of the local character. These key attributes would remain throughout the operation of the site.

3.1.4. The layout of the Park and Ride has been developed to:

- respond to the context of the site;
- maximise the retention of key site characteristics;
- break up the scale and potential impact of the areas of parking;
- provide sufficient vehicle spaces to meet construction worker requirements;
- provide a safe layout for pedestrians and vehicles;
- reduce the potential impact of the building and bus transfer area; and
- connect the site visually and physically to the scale and pattern of the surrounding landscape.

3.1.5. To meet these objectives, the design approach identifies the key areas of ecological and hydrological value and incorporates measures to retain, protect and enhance these valuable assets, embedding them seamlessly within the design. A constraints drawing has been produced and is shown in figure 13.

3.1.6. The proposals would establish the field pattern from the outset, defining a series of spaces that would be able to accommodate the construction of the parking areas. The spaces would be separated with a combination of hedge planting and swathes of species-rich grassland that would mature during the operation of the facility, replicating and reinforcing the existing field pattern in scale, density and species.

3.1.7. There is potential for surface water flooding at the Park and Ride. The embedded mitigation to mitigate this could include storage ponds and installation of a granular sub-base to allow surface flows in permeable car park areas to permeate to the below-ground storage.

3.2 CONSULTATION AND DESIGN EVOLUTION

CONSULTATION

3.2.1. Volume 1 of the DAS (Application Reference Number: 8.2.1) provides an introduction to the consultation process for the Wylfa Newydd DCO Project, which is set out in detail in the Consultation Report (Application Reference Number: 5.1). Appendix 11-6 of the Planning Statement (Application Reference Number: 8.1) summarises the outcome of consultation in relation to the Park and Ride.

3.2.2. The three main stages of the consultation process, between 2014 and 2017 are explained in the documents above.

3.2.3. At Stage One Pre-Application Consultation, responses received (from both statutory and non-statutory consultees) were generally very supportive of the need for a Park and Ride, recognising the benefit to traffic congestion and general impacts to the infrastructure on the island. Horizon continued investigation to the location and requirements of the Park and Ride.

3.2.4. In response to comments raised by Natural Resource Wales (NRW) the development is proposed to be located further from existing watercourses and Horizon has given further consideration to drainage and further consideration was given to the access highway layout. This was driven by the need to accommodate a large number of right turning traffic.

3.2.5. In response to the Stage Two Pre-Application Consultation, the Welsh Government and the Isle of Anglesey County Council (IACC) questioned the rationale and assumptions for the Dalar Hir site and raised several concerns regarding its impact on the environment and on traffic flows. The feedback recorded some support for the proposed Park and Ride site, although this was often caveated by suggestions of the need for additional locations both on and off Anglesey. Horizon considers that the Park and Ride at Dalar Hir is the only Park and Ride facility required to be provided, as confirmed in the Site Selection Report (Application Reference Number: 8.24.5).

3.2.6. Horizon's strong preference is for the Park and Ride to be provided at a single site. This is particularly important in order to be able to deliver an efficient construction project which is capable of delivering the Power Station as early as possible, in accordance with NPS EN-1 and EN-6. It has been determined that a mainland site would only be required in a scenario where there are capacity issues elsewhere on the road network (for example, on the Britannia Bridge). Transport modelling has determined there are no capacity or highway safety reasons why a park and ride would be required on the mainland, in addition to or instead of on Anglesey. Further information is provided in the Transport Assessment (Application Reference Number: 6.3.14) and ITTS (Application Reference Number: 6.3.20).

3.2.7. Horizon considers that the Park and Ride at Dalar Hir is the only Park and Ride facility required to be provided, as confirmed in the Site Selection Report (Application Reference Number: 8.24.5).

3.2.8. Since the Stage Two Pre-Application Consultation the Wylfa Newydd DCO Project went through an important period of review. This review included Horizon's appointment of a joint venture partner and various consultants to take forward its proposals for project design and deliverability and, secondly, Horizon's consideration of the feedback from the Stage Two Pre-Application Consultation and other engagement with local stakeholders.

3.2.9. The key design changes between the Stage Two and Stage Three Pre-Application Consultation are as follows:

- secure parking reduced from 2,700 to up to 1,900 parking spaces as a result of further understanding of construction worker requirements. The reduced parking area allows more green space to be retained around the northern and eastern boundaries of the site;
- the Park and Ride would now also be partially used for long-stay parking for a proportion of workers at the Site Campus. This reduces traffic on the A55 and on the A5025 between Valley and the Wylfa Newydd Development Area;
- reduced parking spaces for motorbikes (94 to around 35) and bicycles (84 to around 25) reduces traffic on the A55 and on the A5025 between Valley and the Wylfa Newydd Development Area due to further understanding of construction worker requirements;
- cycle store has reduced from 20m long, 11m wide, and 6m high to a maximum of 11m long, 7m wide and 5m high, to reflect the reduced number of cycle spaces;
- the temporary bus terminal facility building is now approximately half of the size previously proposed to reflect the needs of the Wylfa Newydd DCO Project (reduced from 61m long, 27m wide and 10m high to a maximum of 30m long, 13m wide and 5m high);
- the bus waiting pick-up and drop-off zone reduced from 40 to 15 buses as the reduction in daily car parking demand has reduced the number of buses required; and
- minor improvements proposed to Junction 4 of the A55 to improve traffic flows.

3.2.10. Concerns were raised during the Stage Three Pre-Application Consultation regarding the uncontrolled parking of workers required to car share.

3.2.11. Expected standards to be placed on construction workers in relation to their conduct and behaviour whilst employed on the Wylfa Newydd DCO Project are set out in the Workforce Management Strategy (Application Reference Number: 8.5) and the subsequent Code of Conduct, prepared in accordance with the principles in the Workforce Management Strategy (Application Reference Number: 8.5), and which workers will be required to comply with during their employment on the Wylfa Newydd DCO Project.

3.2.12. Traffic associated with the Wylfa Newydd DCO Project will be managed by the controls and measures set out in the Wylfa Newydd Code of Construction Practice (CoCP) (Application Reference Number: 8.6) and relevant sub-CoCPs.

3.2.13. In order to reduce the number of private vehicle movements used by construction workers on the highway network, Horizon will promote and encourage car sharing between staff using appropriate internal media, for example, an intranet or app, which contractors, through the Code of Conduct, will be required to support.

3.2.14. Information packs will be provided to all construction workers at their induction. The information packs will contain, but not be limited to, the following:

- HGV routes and route restrictions (if appropriate);
- construction vehicle routes (if appropriate);
- non-compliance guidance;
- complaints procedure; and
- bus routes.

3.2.15. Horizon will introduce reasonable measures to promote and incentivise cycling and walking to work. Relevant information will be provided with induction materials.

3.2.16. As such it is considered that the proposed Park and Ride will be a successful component of the Wylfa Newydd DCO Project and sufficient measures are in place to control parking of workers and traffic flows effectively.

STAKEHOLDER ENGAGEMENT

3.2.17. The design of the facility has been developed in consultation with a number of stakeholders including, but not limited to, the following.

- The IACC: the local authority and planning authority.
- Design Commission for Wales (DCfW): established by the National Assembly for Wales to promote good design; they support the local planning authority to "capture the value of high quality design for better outcomes and a better return on investment".
- NRW: principal advisor to the Welsh Government about issues relating to the environment and its natural resources. Regulator to protect people and the environment including marine, forest and waste industries, and prosecute those who breach the regulations that NRW are responsible for. Designator for SSSIs, areas of particular value for their wildlife or geology, Areas of Outstanding Natural Beauty and National Parks, as well as declaring National Nature Reserves.
- Scottish Power Energy Networks: principal electricity power supplier in the area. Provides advice on existing and proposed power supply requirements.
- Welsh Water: principal water supplier in the area. Provides advice on incoming water supplies and outgoing foul and surface water sewerage.
- Wales & West Utilities: principal gas supplier in the area. Provides advise on gas supply and connections.
- Crime Prevention Design Advisor (North Wales Police): provides crime prevention and security advice with particular emphasis on 'Secured by Design' principles.
- Fire Safety Officer (North Wales Fire and Rescue Service): provides fire prevention and strategy advice.
- Various mobile phone operators.
- British Parking Association (BPA): provides advice on car parking with emphasis on achieving 'Park Mark Standards'.

3.2.18. Engagement with these bodies is ongoing as the statutory consultation has finished.

SUMMARY OF DESIGN EVOLUTION

3.2.19. This section provides an overview of the overall design development of the Park and Ride.

3.2.20. The design evolution started with a requirement to provide parking for up to 3,000 vehicles, associated bus transfer facilities and maintenance facilities. This initial layout incorporated three main parking areas with access off the exiting roundabout and the main access through the site running along the northern boundary. Through project optimisation and with the development of the ITTS (Application Reference Number: 6.3.20), the spaces required were reduced to 2,000. Figure 14a (1 and 2) shows these initial layouts. In both layouts, the aim was to separate car and bus movements to minimise the risk of conflicts between the two different vehicle types.

3.2.21. Environmental and site data was also gathered to inform the design. From the environmental data and site analysis, a set of EDOs (see Appendix A for details) were developed and a layout evolved to meet the EDOs and the requirements of the facility.

3.2.22. With the completion of the site surveys and identification of the EDOs, the layout of the site was reviewed. In accordance with comments by NRW, the objective to retain existing field boundaries was aligned with the splitting up of the parking into a number of separate parking areas to meet the ramp-up and ramp-down of the parking requirements.

3.2.23. The access road was changed to a central spine road to allow car parks to be accessed to the north and south of the spine road and retain the car exit to the east end of the site onto the A5. This layout retained the segregation between buses and cars.

3.2.24. Sketches showing the evolution of this site design are shown in figure 14a (3 and 4).

3.2.25. This layout was then further developed with the following modifications:

- total vehicle parking spaces adjusted to meet developing requirements;
- bus transport facility building located in a central position to aid accessibility;
- bus waiting, pick-up and drop-off zone arrangement rationalised;
- environmental buffer zones integrated into the layout to provide separation between parking zones;
- ancillary services buildings and cycle store added;
- site drainage philosophy identified; and
- site fencing/walls identified and added.

3.2.26. Following project optimisation, it was identified that parking numbers could be adjusted to 1,900.

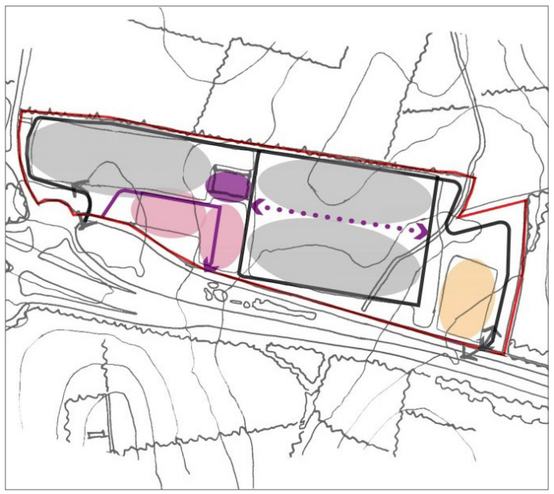
3.2.27. With this new requirement the layout was then further developed with the following modifications:

- 1,900 total vehicle parking spaces;
- parking zones identified for mini-bus, staff, motorbike, accessible and electrical charging points;
- vehicle and pedestrian circulation reviewed and safer walking routes developed, access points clarified and internal bus stopped incorporated;
- site entrance arrangement amended, including removal of substation, alteration of proposed roundabout position;
- bus transport facility area developed, building size and function condensed, relocation of staff and accessible parking, reduction of bus pick-up / drop-off spaces and the addition of overnight bus parking area; and
- potential water storage area identified.

3.2.28. Sketches showing the evolution of this site design are shown in figure 14b (5 and 6).

3.2.29. The proposed design has achieved a balance between meeting the functional requirements of a Park and Ride as outlined in the strategic design brief and EDOs for the site.

- Design incorporates buffer zones around existing hedge lines and the Nant Dalar Hir.
- Design take cognisance of the existing field boundaries and planting.
- Design levels look to follow existing topography to minimise the cuts and fill required on the site.
- The use of permeable surfacing solutions is maximised within the parking areas.
- Intelligent lighting systems would be used that enables lighting levels to be reduced or switched off when not required.



1) **Capacity study 01:** An initial capacity study was undertaken to accommodate up to 3,000 vehicles. The study included:

- up to 3,000 total vehicle parking and staff parking zones;
- site access/exit road locations proposed, with main access road on the northern boundary;
- bus transport facility building located centrally within the site area to minimise pedestrian travel distance from parking zones;
- bus waiting, pick-up and drop-off and zone proposed to consider general worker transportation efficiency; and
- an on-site bus maintenance depot.

2) **Design development 01**: The initial layout, based on capacity study 01, was refined to include:

- vehicle parking numbers reduced to 2,000 total; the reduced numbers freed up the eastern site area for the possibility of other facilities;
- site access/exit road locations proposed, with main road access retained on northern boundary;
- parking arrangement layout amended to suit reduced numbers; and
- bus depot location relocated to centre of the site.

Figure 14a Evolution of site design: design development and capacity studies

3) **Capacity study 02:** In January 2016, the environmental constraints were identified and a response was developed to protect and incorporate, where appropriate, key areas of ecological value. The study allowed for:

- 2,000 total vehicle parking spaces;
- environmental and landscape constraints and buffer zones;
- bus transport facility building location centred within the scheme;
- car park circulation via a 'spine road' aligned to maximise retention of the existing hedgerows with the site;
- bus waiting, pick-up and drop-off zone and arrangement amended to suit revised site layout; and
- bus maintenance depot deleted due to the site constraints.

4) **Design development 02**: The capacity study was further refined to incorporate:

- 2,240 total vehicle parking spaces;
- bus transport facility building located in a central position to aid accessibility;
- bus waiting, pick-up and drop-off zone arrangement rationalised;
- environmental buffer zones integrated into the layout to provide separation between parking zones;
- ancillary services buildings and cycle store added;
- site drainage philosophy identified; and
- site fencing/walls identified and added.

5) **Design development 03:** The capacity study was further refined to incorporate:

- 1,900 total vehicle parking spaces;
- parking zones identified for mini-bus, staff, motorbike, accessible and electrical charging points;
- vehicle and pedestrian circulation reviewed and safer walking routes developed, access points clarified and internal bus stopped incorporated;
- site entrance arrangement amended, including removal of substation, alteration of proposed roundabout position;
- bus transport facility area developed, building size and function condensed, relocation of staff and accessible parking, reduction of bus pick-up / drop-off spaces and the addition of overnight bus parking area; and
- topographical information incorporated into proposed site levels.

6) **Design development 04:** Subsequent to the DCO application, the design was changed to omit the new roundabout at the entrance, meaning all inbound traffic to the site enters off a new entrance off the existing junction roundabout. Buses exit onto this existing junction roundabout.

Figure 14b Evolution of site design

3.3 PARAMETERS FOR IMPLEMENTATION

3.3.1. The 'parameters approach' adopted by Horizon identifies defined envelopes for the construction the Wylfa Newydd DCO Project within which future development will be undertaken.

3.3.2. The reason for adopting this approach is to ensure that Horizon has sufficient flexibility to accommodate any design changes that may be required between the DCO being granted and construction commencing.

3.3.3. The Wylfa Newydd Project as a whole has been developed adopting a parameters approach, but for sites where the design flexibility is relatively fixed, or elements have environmental impacts that need to be controlled/limited, the parameters are defined on a limited basis.

3.3.4. For the Park and Ride, where detailed drawings are submitted for approval, the DCO Requirements enable revised plans to be submitted for approval by the relevant planning authority in accordance with the DCO parameters tables and design principles set out in section 3.4 of this DAS.

POSITIONS OF BUILDINGS AND STRUCTURES

3.3.5. The Parameter Plan proposes that the positions of buildings and structures would be flexible to within a 5m zone relative to the positions shown on the drawings.

BUILDING WIDTH AND LENGTH

3.3.6. It is proposed that the length and width of buildings would have a tolerance to pre-empt differences in manufacturers' module details and cladding extent.

3.4 DESIGN PRINCIPLES

3.4.1. The DCO parameters tables and maximum building dimensions (as described in section 3.3) provide the 'envelope' for the built form of the Park and Ride, within which alternative schemes could be brought forward.

3.4.2. Where details of design are to be pursuant to a DCO Requirement, these must be in accordance with the following series of design principles.

3.4.3. The operational and functional requirements for the facility, as described in section 1.5 Strategic design brief, and more concisely listed in table 1 and table 2, underpin the development of these design principles.

3.4.4. Part B explains how the detailed design, sought for approval, has been developed. Appendix B sets out in summary how the design principles may be met in the design proposals, and how the facility meets the principles of 'good design' in accordance with EN-1 and EN-6. Good design criteria outlined in the aforementioned National Policy Statements (NPSs) are described in table 3.

3.4.5. As set out in Volume 1 of the DAS (Application Reference Number: 8.2.1), the Planning Act (2008) places importance on good design. Policy relating to good design for energy infrastructure is set out in NPS EN-1 and policy relating to good design specifically for nuclear power generation is set out in NPS EN-6. These policies are set out in detail in the Planning Statement (Application Reference Number: 8.1).

3.4.6. While there is no hierarchy in the principles of good design, both NPS EN-1 and EN-6 recognise that the nature of energy infrastructure developments can limit the choice an applicant may have in respect of the visual appearance of buildings. For these reasons, the policies recognise that the achievement of good design goes beyond visual aesthetics and that the functionality of infrastructure is just as important. In this respect, the Planning Inspectorate needs to be satisfied that energy developments are functional and sustainable, and having regard to regulatory and other constraints, are as attractive, durable and adaptable as possible. In making this assessment, paragraph 2.8.1 of EN-6 confirms that the need to ensure the safety and security of a nuclear station and to control the impacts of its operation, should be given substantial weight in determining whether or not the principles of 'good design' under EN-1 have been achieved.

3.4.7. For the purposes of this DAS, policy relating to good design has been grouped into the six themes set out in table 3. Grouping them in this way does not seek to alter the meaning of policy and is applied to help demonstrate how the design principles in this chapter underpin the delivery of good design.

Table 3 Good design

GOOD DESIGN	CORRESPONDING THEME
The applicant should take into account functionality including fitness for purpose (NPS EN-1, Para 4.5.1). The need to ensure the safety and security of the power station, and the need to control the impacts of its operations, must be given substantial weight given the importance of these factors to the operation of a nuclear power station (NPS EN-6, Para 2.8.1). The GDA, site licensing and environmental permitting processes will consider certain aspects of design, which the IPC should not replicate (NPS EN-6, Para 2.8.4).	Functionality
Applying good design to nuclear power stations means giving substantial weight to the need to control the impacts of its operations (NPS EN-6, Para 2.8.3). Good design can act to mitigate the impacts of nuclear power stations, such as landscape and visual impacts (NPS EN-6 Para 2.8.3). Good design can help mitigate adverse impacts through use of appropriate technologies. (NPS EN-1, Para 4.5.2).	Mitigation
The appearance should demonstrate good aesthetic as far as possible (NPS EN-1, Para 4.5.3) Energy infrastructure developments should be sustainable and, having regard to regulatory and other constraints, should be as attractive, durable and adaptable as they can be (NPS EN-1, Para 4.5.3). The applicant should take into account aesthetics, including its contribution to the quality of the area in which it would be located (NPS EN-1, Para 4.5.3). The applicant may not have any or very limited choice in the physical appearance of some energy infrastructure (NPS EN-1, Para 4.5.3).	Appearance
Applying good design to energy projects should produce sustainable infrastructure that is sensitive to place (NPS EN-1, Para 4.5.3). There may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3).	Character
Applying good design to energy projects should produce sustainable infrastructure that is efficient in the use of natural resources and energy used in their construction and appearance. (NPS EN-1, Para 4.5.3).	Sustainability
For some structures where the functional requirements may change over the lifetime of the structure, such as sea defences, they should be capable of being adapted if the need were to arise in future without major re-design or significant physical disruption (NPS EN-6, Para 2.8.2).	Adaptability

This table should be read in conjunction with Appendix B, which sets out how the design principles may be met in the design proposals, and how they meet the principles of 'good design'.

KEY DESIGN PRINCIPLES

3.4.8. There will be provision of up to 1,900 parking spaces at the Park and Ride.

3.4.9. The vehicular entrance to the Park and Ride will be via a new access point off the existing northern A55-A5 junction roundabout. This will act as the entrance for all vehicles and as an exit for buses.

3.4.10. Design will incorporate, wherever possible, features which enable efficient conversion to legacy land use following operation.

3.4.11. Bus routes within the site will be designed as a one-way system in order to avoid the need for reversing buses. The layout will minimise conflicts between cars and buses.

3.4.12. Designated pedestrian routes will be provided around the site.

3.4.13. Historic field boundaries will be retained and enhanced, where practicable, to maintain the landscape character.

3.4.14. New tree and shrub planting will be provided to enhance existing hedgerow, reinforce the field pattern within the site, integrate the site with the surrounding landscape and establish a boundary to the A55.

3.4.15. As part of the restoration work, existing boundary hedgerows and stone walls that were removed for vehicular and pedestrian access will be restored to the original boundary alignment.

3.4.16. A low energy design will generally be adopted, based on the hierarchy of minimising use, reducing waste, recycling and on-site generation.

3.4.17. The size, shape and orientation of each parking area will be designed to avoid unnecessary watercourse crossings, thereby reducing effects on surface water.

3.4.18. In order to manage potential flood waters from both fluvial and pluvial sources further detailed manipulation of the topography of the Park and Ride will be progressed and redirection of flow paths will be used to manage these within the Park and Ride without increasing flood risk elsewhere.

3.4.19. Potential flood risk from storm water runoff will be mitigated by the drainage design developed for the Park and Ride site which includes the measures outlined below.

- Permeable surfacing and landscaping will be incorporated across the car parking areas, reducing the increase in impermeable area.
- Underground storm water attenuation/storage, sized to contain a 1% Annual Exceedance Probability (1 in 100 year) storm event, with a 20% allowance for climate change.
- The majority of car parking will be on permeable surfacing with a granular sub-base which will form a below-ground storm water attenuation/storage facility.
- Inclusion of flood attenuation areas.

MASTERPLANNING PRINCIPLES

3.4.20. Site security and a secure fenced boundary will be incorporated into the site design, to ensure the safe and secure operation of the facility, and to deter crime.

3.4.21. Automatic access barriers will be provided at the entrance to the facility.

3.4.22. The site will be designed to allow construction and decommissioning in phases.

3.4.23. Highway access will be designed to avoid the potential for queueing outside the site. Exits onto the A5 will be signal controlled.

3.4.24. A new bus stop will be provided on the A5 at the Park and Ride to improve access to it from local towns and villages for construction workers.

BUILDING DESIGN PRINCIPLES

3.4.25. The architectural design will use simple building forms to recognise the function of the facility whilst still complementing its surroundings.

3.4.26. A visually recessive palette of colours will be used.

3.4.27. Off-site modular construction will be used where practicable.

3.4.28. The colour and structure of the bus canopies will be chosen to reduce the visual intrusion of the canopies through the use of visually recessive colours and light structural frames.

3.4.29. All offices and meeting rooms will include an external window.

3.4.30. The bus transport facility building and waiting area will be centrally located within the site to increase the offset distance between noise sources (e.g. fixed plant and buses) and nearby sensitive receptors.

3.4.31. The long-term appearance, including exterior finishes, of new or existing buildings, which will remain during the operational period of the Park and Ride, will be maintained until demolished.

LANDSCAPE DESIGN PRINCIPLES

3.4.32. Historic field boundaries will be retained and enhanced where practicable, to maintain landscape character.

3.4.33. To help reduce landscape and visual impacts over a shorter time period, advance planting will be implemented within the establishing planting belt parallel with the southern Park and Ride site boundary and the A5, as well as and in areas where existing hedgerows are being reinforced and enhanced.

3.4.34. Landscape features will be retained with buffer zones where appropriate.

3.4.35. Landscape areas with be seeded with appropriate grassland species in order to help integrate into the surrounding landscape. Appropriate management will be undertaken to ensure successful establishment. Early phased programme of grass seeding and management will be implemented as areas are completed to improve integration with surrounding rural area and reduce landscape and visual impacts.

3.4.36. New boundary tree and shrub screen planting will be established for the A55.

3.4.37. The design will incorporate, species-rich hedgerow creation to soften appearance and strengthen the landscape pattern.

3.4.38. Existing topography will be used where possible to limit cut and fill and limit topographical changes.

3.4.39. All watercourses identified on-site will be retained.

3.4.40. Planting will be provided to reinforce and enhance existing hedgerows within the earliest appropriate planting season.

3.4.41. External boundaries will be reinstated to pre-development condition or better.

- Existing boundary hedgerows and stone walls, removed for Park and Ride access and egress, will be restored to the original boundary alignment.
- Localised openings to internal hedgerows will be restored where previously removed for vehicular/pedestrian access.
- New internal hedgerow, extending east to west, from the location of demolished Dalar Hir farmhouse to the London Road boundary, will restore the existing hedge line removed at construction.

3.4.42. Existing hedges and walls will be retained with localised openings created for pedestrian/vehicular access whenever practicable and appropriate.

3.4.43. A simple hard landscaping palette will be used to fulfil the functional requirements of the temporary development and create a clean landscape finish whilst being sufficiently robust to respond to the site's functional requirements.

3.4.44. Aggregate laid down for car parking will be underlain by an impermeable membrane that will route drainage to oil separators prior to discharge to surface water. In order to manage runoff throughout the lifetime of the Park and Ride, the drainage system will be implemented from as early as practicable in construction.

3.4.45. The surface water drainage design will include measures to prevent pollution of local watercourses and include measures to control the peak runoff rate from the site.

3.4.46. CCTV will be provided at strategic locations within the site.

3.4.47. The design of the Park and Ride will include footway improvements as well as continuation of footways which will also run along the A5 to a pedestrian access to the Park and Ride.

SUSTAINABILITY PRINCIPLES

3.4.48. A clear span bridge will be provided over the single crossing across the Nant Dalar Hir during operation of the site. This clear span bridge will be designed according to good practice design guidelines and the bridge deck will be sited above a design flood level.

3.4.49. Lighting design will limit light-spill by controlling operational lighting, through the use of control measures, e.g. movement sensors, dimming and deactivating lighting in unused car parking zones.

3.4.50. Lighting during the operational stage of the Park and Ride will ensure that light-spill onto hedges and watercourses are avoided wherever practicable.

3.4.51. The facility will include water-efficient fittings which help reduce water consumption.

3.4.52. The drainage design for the access road, bus parking and pick-up area will incorporate oil separators on drainage from the impermeable areas. The oil separators will be located on the inflow to the attenuation tank.

PART B: DESIGN PROPOSALS

4 DETAILED PROPOSALS

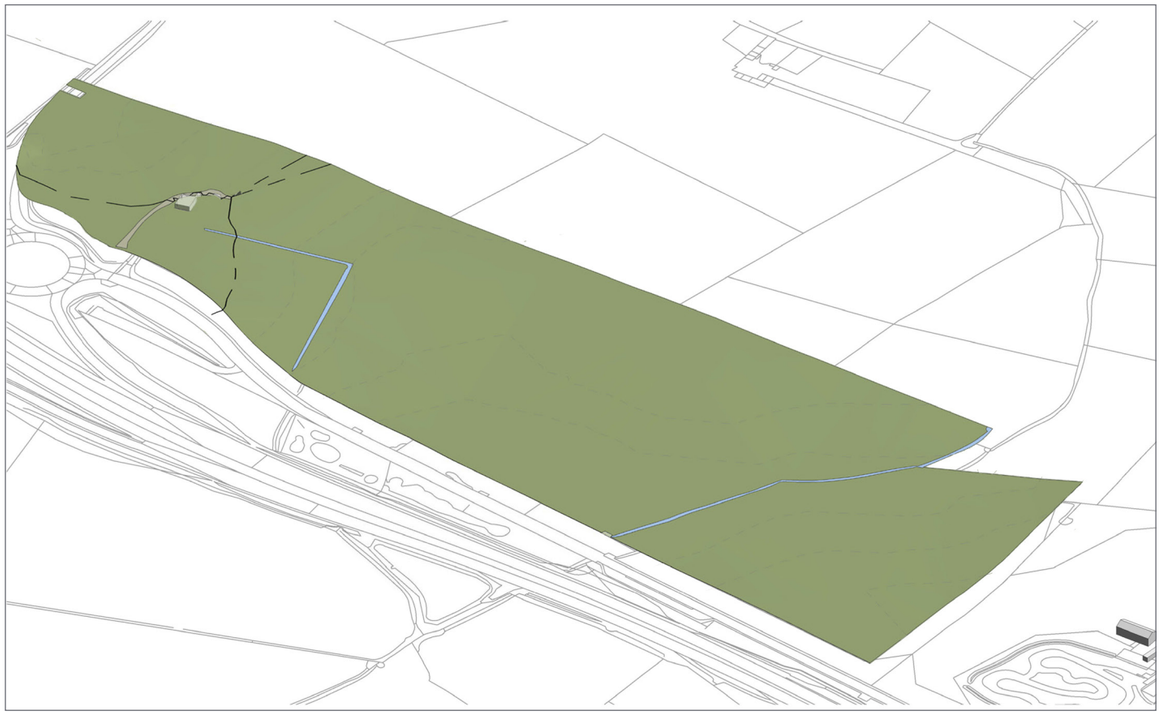
4.1 THE OVERALL SITE SCALE
4.2 LANDSCAPE PROPOSALS
4.3 ARCHITECTURAL BUILDING DESIGN PROPOSALS
4.4 BUILDING SERVICES ENGINEERING PROPOSALS
4.5 EXTERNAL LIGHTING PROPOSALS

Detailed proposals

4.1 THE OVERALL SITE SCALE

4.1.1. The pattern and arrangement of the proposed temporary facility has been developed to reflect the scale of the surrounding areas, refer to figure 15 and figure 16. The bus transport facility building has been placed at the centre of the site, mimicking the surrounding relationship between the homestead buildings and the land they maintain while preserving the site boundaries. The design approach places the scale of the temporary facility within the wider landscape, extending the surrounding field pattern into the site to break down the scale of the parking areas.

4.1.2. The parking would be divided into zones and constructed as required within the Wylfa Newydd DCO Project construction programme. The retained hedgerows and watercourses that define the field pattern would be incorporated into the layout to define the parking areas. The scale of the protection zones surrounding these key assets would provide a sense of separation between the parking zones that would further balance the scale of the parking with the scale of the landscape.



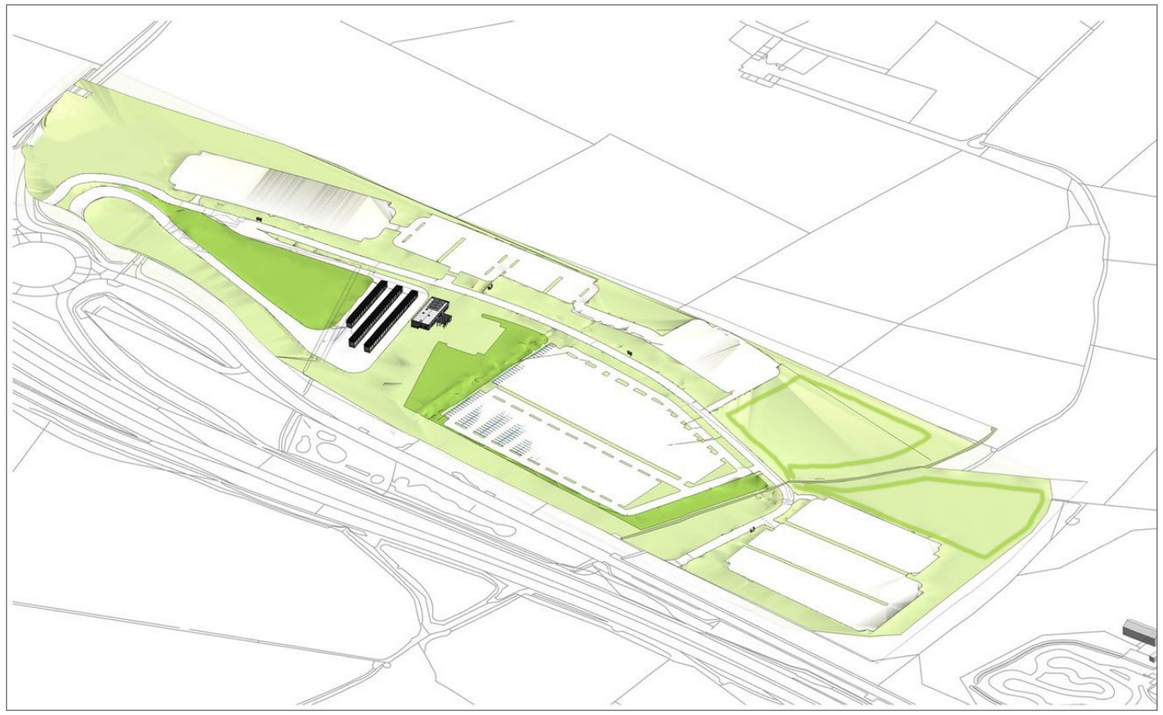


Figure 15 Aerial model image (existing context and proposed massing diagram)

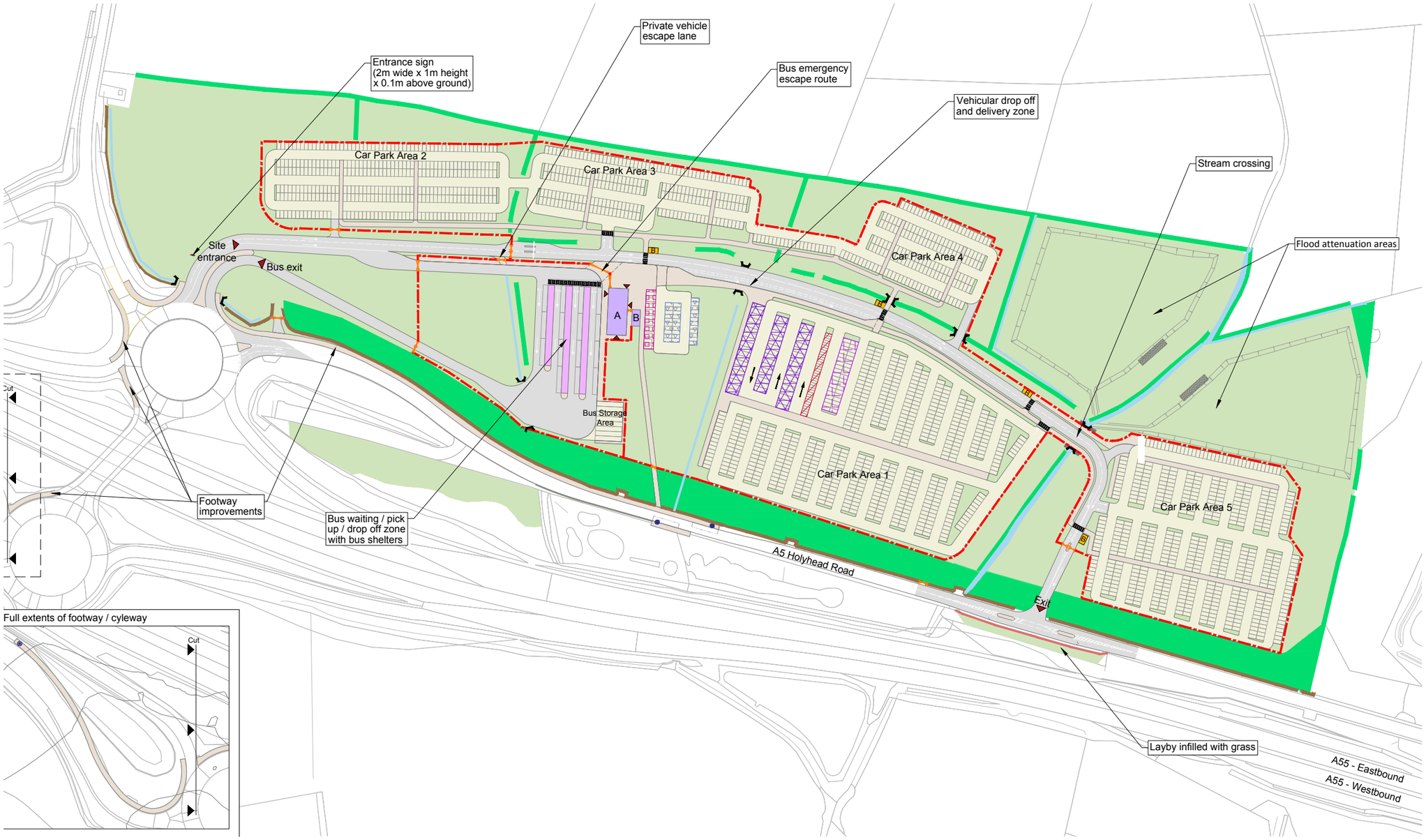


Figure 16 General arrangement plan

4.2 LANDSCAPE PROPOSALS

INTRODUCTION

4.2.1. The long-term landscape strategy for the site would seek to place the car parking and associated transfer facilities sensitively into the landscape, retaining the key landscape and environmental features that reflect the distinctiveness of the local character. These key landscape and environmental assets would remain throughout the operation of the site and its subsequent reinstatement to its current agricultural use.

4.2.2. As part of the wider environmental assessment process, a detailed landscape and visual baseline assessment has been carried out and has identified these key landscape and ecology features (see Environmental Statement chapter F9 Terrestrial and freshwater ecology, Application Reference Number: 6.6.9, and chapter F10 Landscape and visual, Application Reference Number: 6.6.10). The key findings are shown on figure 17 and include:

- plantation woodland;
- cultivated land;
- improved grassland;
- poor semi-improved grassland;
- marshy grassland, primarily to the south adjacent to the A5 Holyhead Road;
- distinct hedge boundaries, the majority part of a hedge bank system;
- potential protected species activity; and
- the Nant Dalar Hir flowing out through the site to the Llyn Traffwll SSSI.

4.2.3. The extent of the ecological assets and their proposed protection areas have been illustrated on figure 18.

Figure 17 Key findings from habitat survey

Figure 18 Extent of ecological assets and zones of protection

LANDSCAPE DESIGN

4.2.4. In line with the 'design principles' set out in section 3, the layout of the Park and Ride proposed for approval has been developed to maximise the retention of the key characteristics, break down the scale of the areas of parking and to reduce the potential impact of the building and bus transfer area. The scheme proposed identifies key hedgerows and watercourses defining the field boundaries, along with any protection measures that may be required, and incorporates these elements to help create a layer of separation between the areas of parking and to connect the site visually and physically to the scale and pattern of the surrounding landscape. Circulation would be accommodated within the retained field pattern with hedging alongside the central road to define dedicated pedestrian routes connecting the parking areas with the bus transfer facilities.

4.2.5. The phasing of the construction and operation of the proposed site is a key element in the landscape strategy with the parking areas divided into small, manageable areas and contained within the field pattern. The construction of the parking areas would adopt SuDS principles that allow the surface runoff to filter back into the existing drainage pattern through a system of sub-base storage, ditches, swales and attenuation tanks. Refer to Figure 38 Surface water strategy for further details.

4.2.6. See figures 19, 20 and 21 for cross sections and a landscape masterplan.

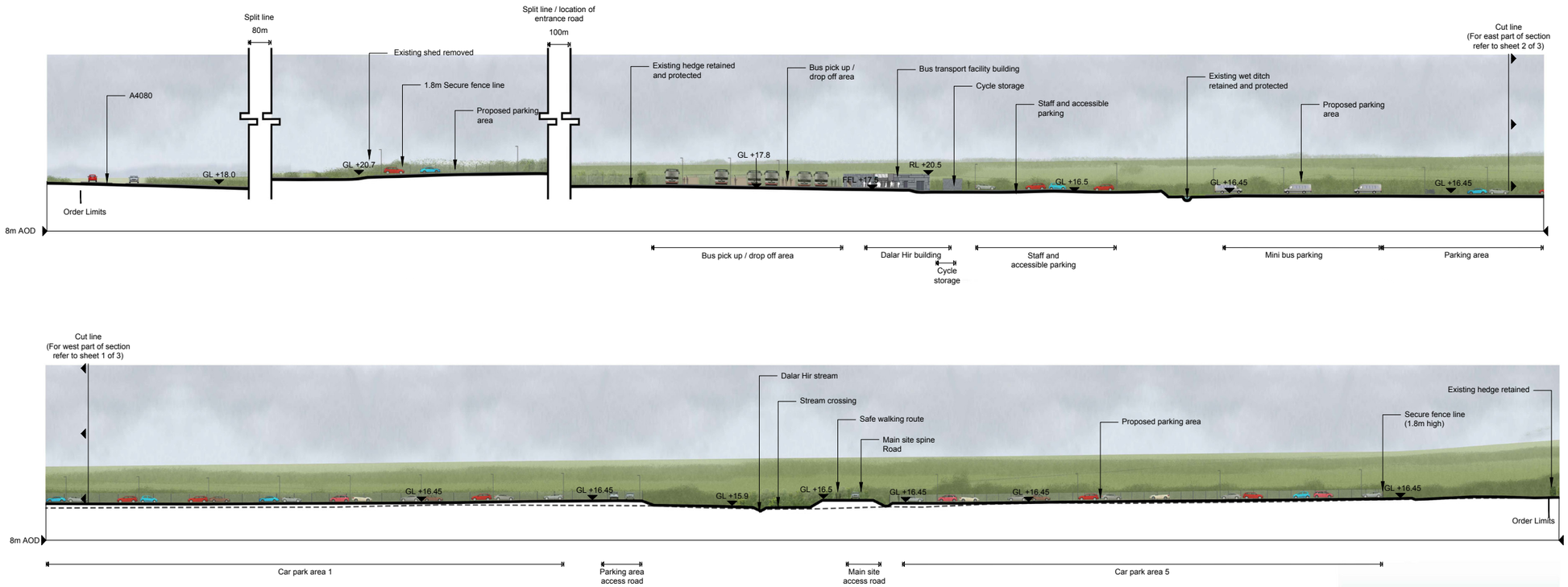


Figure 19 Proposed cross sections AA

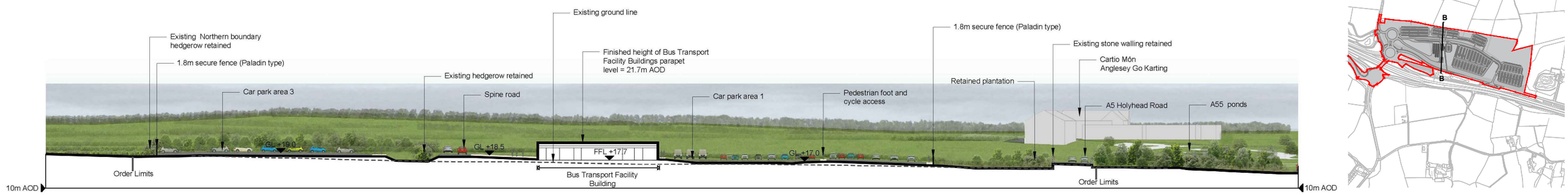
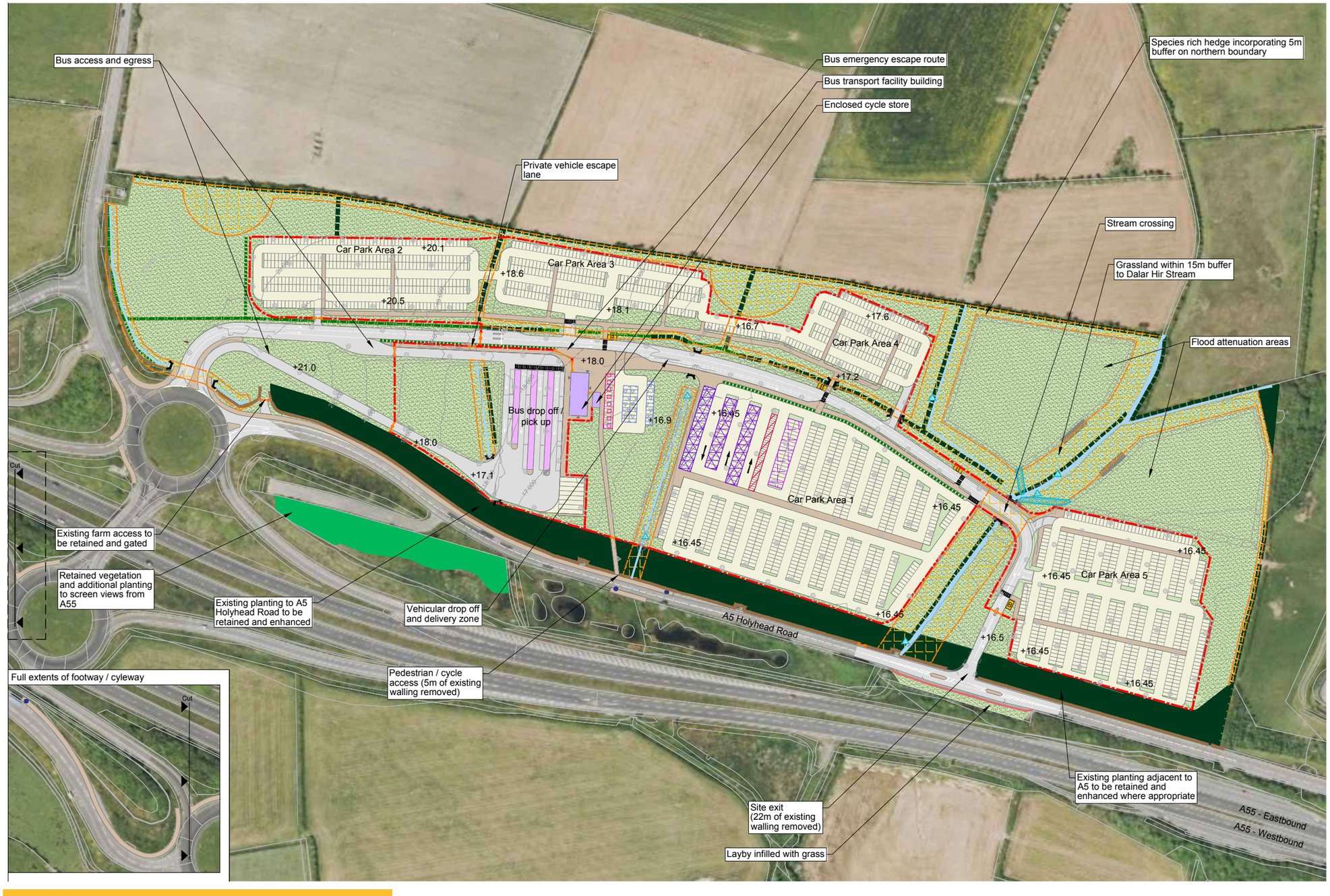


Figure 20 Proposed cross sections BB



Legend

Softworks - existing
- Retained and enhanced trees and shrubs
- Retained hedgerow

Softworks - proposed
- Hedgerow planting
- Native tree and shrub planting
- Grassland - retained or reinstated
- Ecological protection area

Hardworks - existing
- Retained stone walling

Hardworks - proposed
- Proposed stone walling
- Secure fence
- Secure gate / access point
- Vehicle surfacing, non-permeable
- Vehicle surfacing, permeable
- Pedestrian surfacing

Water - existing
- Water course retained

Water - proposed
- Bridge / culvert
- Weir structure location in flood attenuation areas
- Side slopes to flood basin / attenuation areas (1 in 3 maximum)
- Drainage ditch/swale
- Discharge Location

Buildings - proposed
- Building
- Building / site access point
- Bus shelter

Lighting - proposed
- Location of lighting column / unit

Transport - proposed
- Internal bus stops
- Public bus stops
- Minibus parking
- Motor bike parking
- Accessible parking
- Electrical charging point
- Staff parking

Figure 21 Landscape masterplan

PLANTING STRATEGY

4.2.7. The planting strategy would establish a structure for the operation of the facility and its reinstatement based on the existing field pattern and landscape character. The strategy has identified, protected, enhanced and incorporated the key existing features into the design of the site during operation and its decommissioning.

4.2.8. The design concepts are:

- integration with the surrounding landscape character;
- carry out advanced planting to establish the legacy structure at the earliest opportunity; and
- select native and local provenance species based on the surrounding planting pattern and species make up.

4.2.9. The landscape elements proposed for the Park and Ride are as listed in table 4.

LANDSCAPE FUNCTIONS

4.2.10. Each landscape element has been assigned one or more landscape functions. The landscape function defines the long-term design and maintenance objective of each landscape element, i.e. why they are there and what they are intended to achieve in environmental terms.

4.2.11. A description of the landscape environmental functions is provided in table 5.

4.2.12. The planting strategy proposed is shown in figure 22 overleaf.

Table 4 Landscape elements

LANDSCAPE ELEMENT	DESCRIPTION
Agricultural grassland	Permanent areas of grass and herb species appropriate to the location, with a species composition and diversity capable of being maintained through appropriate management that would be encouraged to naturally develop biodiversity interest over time. The grassed areas would help define the buffer zones created to protect the watercourses, streams and existing hedgerows and provide separation between areas of temporary car parking.
Tree and shrub planting to bolster existing plantation areas	Tree and shrub planting with tree species appropriate to the location. Composition, age and structural diversity to perform the intended function (i.e. screening/landscape integration) through ensuring sufficient density, height and widths are maintained.
Retain and enhance existing hedgerows	Reinforce existing hedgerow, replanting gaps and introducing additional local species to improve the biodiversity to maximise foraging and breeding resources for birds, bats and invertebrates.
Native hedgerows with trees	To create low maintenance, biodiversity-enhancing hedgerows to match the existing hedges in pattern, scale and species make up, and which maximise foraging and breeding resources for birds, bats and invertebrates.
Clipped native hedgerows	Temporary clipped native hedgerows flanking key pedestrian routes to aid orientation.

Table 5 Landscape functions

LANDSCAPE FUNCTION	DESCRIPTION
Visual screening (Restoration stage)	Mitigation against adverse visual impacts by screening views of the development site and associated infrastructure from properties and public viewpoints, including Public Rights of Way and public open space.
Landscape integration	Integrate the development site with the character of the surrounding landscape by maintaining the matrix of local vegetation patterns, blending with local landform and softening views of the development site.
Nature conservation and biodiversity	Protect, manage and enhance the nature conservation value of the development site and integrate with and protect adjacent habitats and locations containing protected species or other locally important species or habitats.
Temporary planting	Planting to support orientation through operational areas.

Figure 22 Planting strategy

PLANT SELECTION

4.2.13. The plant selection would reinforce the strategy, developing a series of planting types as set out below and illustrated in figure 23.

RETENTION OF EXISTING ECOLOGICAL ASSETS

4.2.14. The ecology surveys have identified existing areas of habitat value and also where there is opportunity for improvement. The existing hedgerows, wildlife corridors and areas of plantation identified would be protected and, where appropriate, bolstered to gap up hedgerows, replace areas of unsuccessful plantation and improve biodiversity throughout the site. These key assets would be incorporated into the layout and would provide a structure to the reinstatement proposals.

AGRICULTURAL GRASSLAND

4.2.15. The grassland disturbed would be sown with a grass mix appropriate to the current use and surrounding context.

SPECIES-RICH GRASSLAND

4.2.16. Species-rich grasses and wildflowers would be selected that are tolerant of semi-shade and suitable for sowing beneath newly planted or established hedgerows.

4.2.17. Typical grass and wildflower species could include:

4.2.18. Grass species:

- *Agrostis capillaris* (common bent)
- *Anthoxanthum odoratum* (sweet vernal-grass)
- *Briza media* (quaking grass)
- *Cynosurus cristatus* (crested dogstail)
- *Festuca ovina* (sheep's fescue)
- *Festuca rubra* (red fescue)
- *Phleum bertolonii* (smaller cat's-tail)
- *Trisetum flavescens* (yellow oat-grass)

4.2.19. Wildflower species:

- *Achillea millefolium* (yarrow)
- *Centaurea nigra* (common knapweed)
- *Galium verum* (lady's bedstraw)
- *Leucanthemum vulgare* (oxeye daisy)
- *Poterium sanguisorba* (salad burnet)
- *Prunella vulgaris* (selfheal)
- *Ranunculus acris* (meadow buttercup)
- *Rumex acetosa* (common sorrel)
- *Silene dioica* (red campion)

NATIVE HEDGEROW WITH TREES

4.2.20. Shrub and occasional tree species would be selected that are appropriate to the location and are representative of hedgerows in the surrounding area.

4.2.21. Typical species could include:

4.2.22. Tree species

- *Betula pendula* (birch)
- *Quercus robur* (pendunculate oak)
- *Sorbus aucuparia* (rowan)

4.2.23. Hedgerow species

- *Corylus avellana* (hazel)
- *Crataegus monogyna* (hawthorn)
- *Ilex aquifolium* (holly)
- *Prunus spinosa* (blackthorn)
- *Rosa arvensis* (field rose)
- *Rosa canina* (dog rose)
- *Sambucus nigra* (elder)

CLIPPED NATIVE HEDGEROW

4.2.24. Temporary planting would be provided during the operation of the facility to create local interest and shelter, colour and help to aid circulation and wayfinding. Plant selection would be developed from the native palette and used in a more formal structure.

4.2.25. Typical species could include:

- *Corylus avellana* (hazel)
- *Crataegus monogyna* (hawthorn)
- *Ilex aquifolium* (holly)
- *Prunus spinosa* (blackthorn)

DENSE TREE AND SHRUB PLANTING

4.2.26. Tree and shrub species would be selected that are appropriate to the location or are as already existing within the local area to bolster the existing plantations and dense planting on the southern and western boundaries.

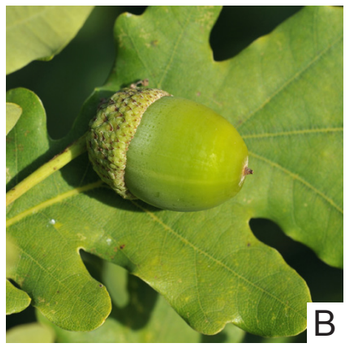
4.2.27. Typical species could include:

4.2.28. Trees

- *Alnus glutinosa* (alder)
- *Betula pendula* (birch)
- *Quercus robur* (pendunculate oak)

4.2.29. Shrubs

- *Corylus avellana* (hazel)
- *Crataegus monogyna* (hawthorn)
- *Ilex aquifolium* (holly)
- *Prunus spinose* (blackthorn)
- *Rosa canina* (dog rose)
- *Sambucus nigra* (elder)



Planting palette

A Corylus avellana
B Quercus robur
C Crataegus monogyna
D Galium verum
E Ilex aquaifolium
F Prunus spinosa
G Betula pendula
H Centaurea nigra
I Achillea millefolium

Images B, C, E, F, G & H used under licence from Shutterstock.com.

Figure 23 Planting palette

LANDSCAPE MATERIALS STRATEGY

4.2.30. The hard landscape scheme design concepts are as follows:

- use a clear approach to material selection to respond to the site's operational requirements, orientation and wayfinding;
- draw on local vernacular and complement architectural building materials; and
- fully consider whole life cost, decommissioning and site reinstatement.

4.2.31. A typical hard landscape palette would be developed to fulfil the functional requirements of the temporary scheme and create a clean, simple landscape finish whilst being sufficiently robust to respond to the site's additional functional requirements.

4.2.32. Materials would create a safe and pleasant environment for pedestrians moving throughout the site, employing a variety of finishes to break up the appearance of the surface areas, aid wayfinding and incorporate the principles of SuDS design within the parking areas.

4.2.33. The typical elements of the palette are as follows, with visuals of the palette in figure 24 and a layout of the strategy in figure 25.

AREA 1 - BUS TRANSFER AREA AND BOUNDARY WITH A5 HOLYHEAD ROAD:

- asphalt reinforced concrete carriageway on main vehicle circulation route and bus transfer stops, concrete block paving area around transfer building;
- co-ordinated site furniture, fencing, benches, signage;
- sensitive and appropriate security measures;
- stone walls – repair/upgrade distinctive elements of the traditional agricultural landscape which exist on-site, including stone walls and field boundaries; and
- sensitive lighting scheme.

AREA 2 – MAIN CAR PARKING AREAS:

- asphalt/granular material with geogrid combination in parking areas incorporating SuDS design concepts;
- block paving / resin bond surface /granular material with geogrid to provide demarcation for safe pedestrian route;
- co-ordinated site furniture, fencing, benches, signage;
- sensitive and appropriate security measures; and
- sensitive lighting scheme.

AREA 3 – CENTRAL SPINE ROAD

- asphalt road surface;
- block paving / asphalt / resin bond / granular material with geogrid surface to provide demarcation for safe pedestrian route;
- co-ordinated site furniture, fencing, benches, signage;
- sensitive and appropriate security measures; and
- sensitive lighting scheme.

AREA 4 – HIGHWAYS WORKS

All works within publicly accessible highway to be to IACC standards.

Images A, B, & E used under licence from Shutterstock.com

Image C used by permission from Geosynthetics Limited

Figure 24 Indicative hard landscape palette

Figure 25 Material strategy

LANDSCAPE MAINTENANCE

4.2.34. On completion of the landscape scheme, all planted and seeded areas would be maintained by Horizon for the lifetime of the development. To ensure the successful establishment and long-term health/vitality, two phases would be followed:

a) Horizon will undertake quarterly landscape site inspections for a 5-year period, followed by annual inspection for a second 5-year period, in order to ensure landscaping has established appropriately.

b) After completion of the above establishment period and the original site has fulfilled its operation use, the site would be reinstated to its current agricultural use.

c) Replacement planting has been proposed as part of the reinstatement post-operation (see chapter 9); however, its long-term maintenance would need to be agreed between Horizon and whoever will manage the land.

4.2.35. The long-term objective would be to create a sustainable landscape that would see this temporary site return to its natural state and distinguished character area, including retention of the enhanced hedgerows.

4.2.36. Table 6 below reflects the typical management principles that could be applied during the temporary period of the scheme. Management thereafter would be carried out by the new landowner/tenant once the site is reinstated.

Table 6 Landscape management table

LANDSCAPE	LANDSCAPE MANAGEMENT RECOMMENDATION	GENERIC MANAGEMENT
Species-rich grassland (Hedgerows and Dalar Hir corridor	Allow a diversity of grasses and wildflower species that are appropriate to the site, to enhance and incorporate existing species allowing a stronger integration when the site is reinstated. Manage a variety of wildflower species to provide colour, form, texture, scale and variety. Manage in sympathy with adjoining species-rich habitats.	Grass cutting Weed control
Native hedgerow with trees	Use same form of local hedgerow management to integrate with local landscape. Allow framing of views across to wider landscapes. Encourage a variety of species to enhance wildlife corridors. Ensure links between adjacent habitats.	Pruning Hedge cut Weed control Treatment of arisings Replant gaps Accommodate trees when cutting
Tree/shrub planting	Retain and replenish where required to keep cover. Mix of species to reflect local landscape character.	Pruning Weed control Replant gaps

4.3 ARCHITECTURAL BUILDING DESIGN PROPOSALS

INTRODUCTION

4.3.1. The general design philosophy and approach has been to create a simple building form, in the attempt to blend the new facility with the existing surrounding buildings and the landscape form. The buildings and structures have been designed as part of the overall landscape strategy for the site. Proposed development of the Park and Ride provides 'at grade' parking spaces to enable workers and visitors to the Power Station Site to transfer to buses serving the Power Station Site.

4.3.2. The bus transport facility building is located centrally, so as to minimise the pedestrian route to the building from the furthermost car parking bay areas. Vehicle parking areas are organised into zones around the building. The position of the building is also beneficial in terms of proximity to a public bus stop on the adjacent A5, which would be accessible via a short pedestrian walkway. The stands for transfer buses would accommodate bus shelter canopies.

4.3.3. The Park and Ride site and the buildings and infrastructure are temporary and are intended to be dismantled once they are no longer required. The building is therefore designed with simplicity and efficiency of construction and removal as a priority. The nature of the building as essentially a temporary feature has been used to generate a simple building form and a kit of parts that complement the context of the overall site. The bus transport facility building would be pre-fabricated modular units with an external rain screen cladding. The design has been developed to ensure that it responds to the brief, recognising that, although temporary in nature, the developments would be in situ for a number of years.

4.3.4. The size and layout of the building has been developed through the initial consultation period to reflect both external stakeholder comments from DCfW and the functional and people flow requirements of transport interchange. It has also taken on board output from engagement with various stakeholders (see section 3.2 Stakeholder engagement).

4.3.5. Visualisations of the proposals are shown in figure 26 and figure 27.

4.3.6. An inclusivity access audit has been undertaken in order to achieve the necessary access requirements to and within the site (see Section 7.1). Feedback from the audit has been incorporated in the design. The audit has highlighted the need for unobstructed and sufficiently lit pedestrian access routes from all the car parks to the bus pick-up and drop-off zone. It has also highlighted that accessible parking must be within a short distance from the building. Thus, the building has been positioned at the centre of the site, optimising the accessibility for people walking to and from car parking areas to the bus pick-up and drop-off zone with accessible parking in the closest car park.

4.3.7. The location of the bus transport facility building meets both access requirements and functional and operational requirements. The location within the site footprint also minimises the visual impact from key viewpoints. The design siting approach and massing reduces the overall building visual impact along with careful use of both the existing and the proposed site levels.

4.3.8. The overall architectural strategy for the design of the buildings is to both recognise the function of the facilities and to harmonise with, and complement the surroundings. The external rain screen cladding would have a stone-effect finish to reflect the natural stone building materials, complementing the site's location.

Figure 26 Computer generated image of the site from the north-east boundary (opening year)

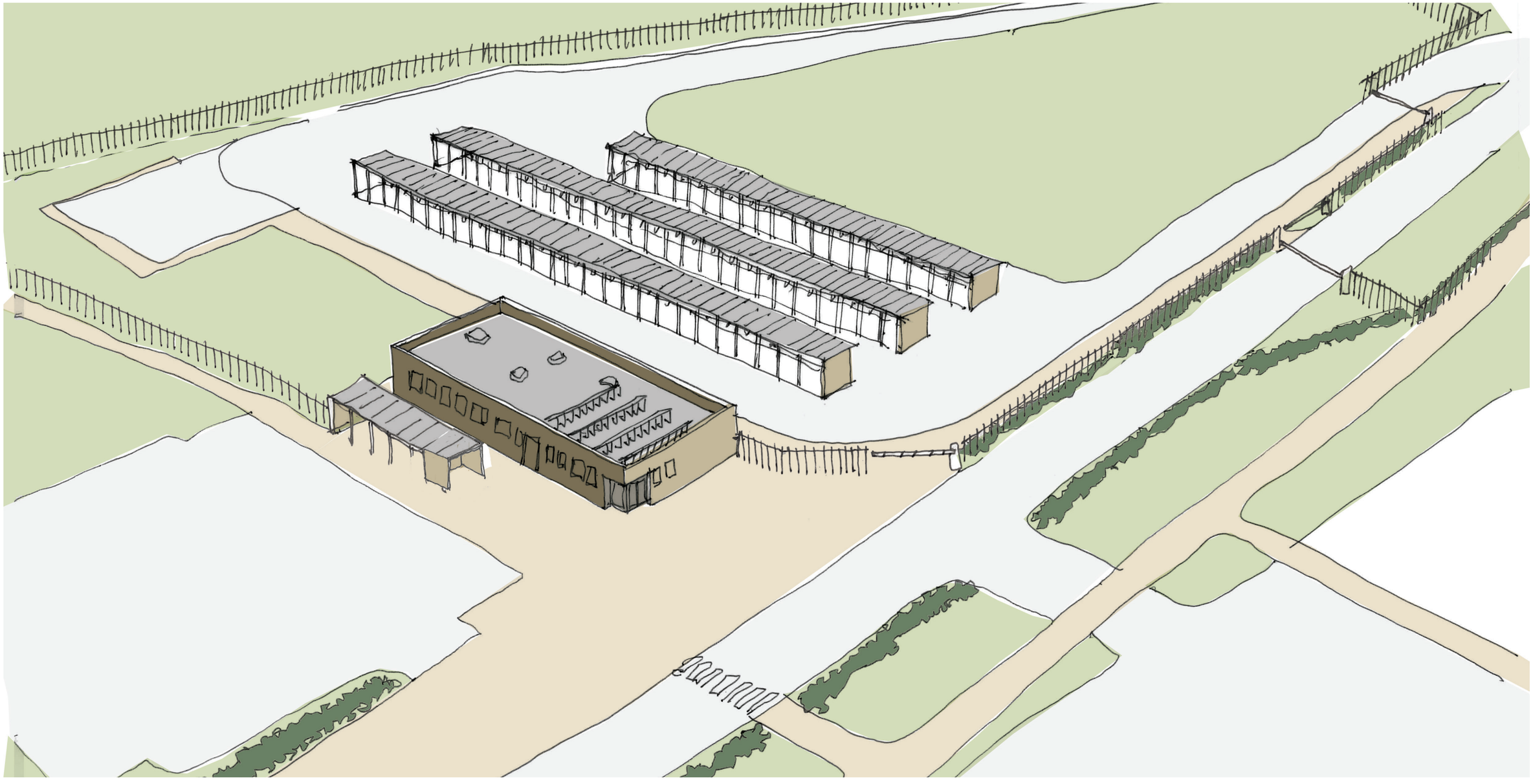


Figure 27 Architectural aerial sketch of facility

DESIGN OF BUS TRANSPORT FACILITY BUILDING

4.3.9. The design philosophy and general approach, which has led to the development of the current building layout, has created a simplified layout, to meet the functional requirements of the staff, drivers and users. The main entrance and security functions for the Power Station Site would be located at the entrance to the Power Station Site. The Park and Ride would fulfil a transfer function from car to dedicated buses.

4.3.10. The building would be 12.6m wide, 29.1m long and 4.2m high, with dedicated facilities for a pass office, bus drivers, staff facilities and toilets for all users.

4.3.11. Visual representations of the development of the building are shown in figure 28, figure 29 and figure 30.

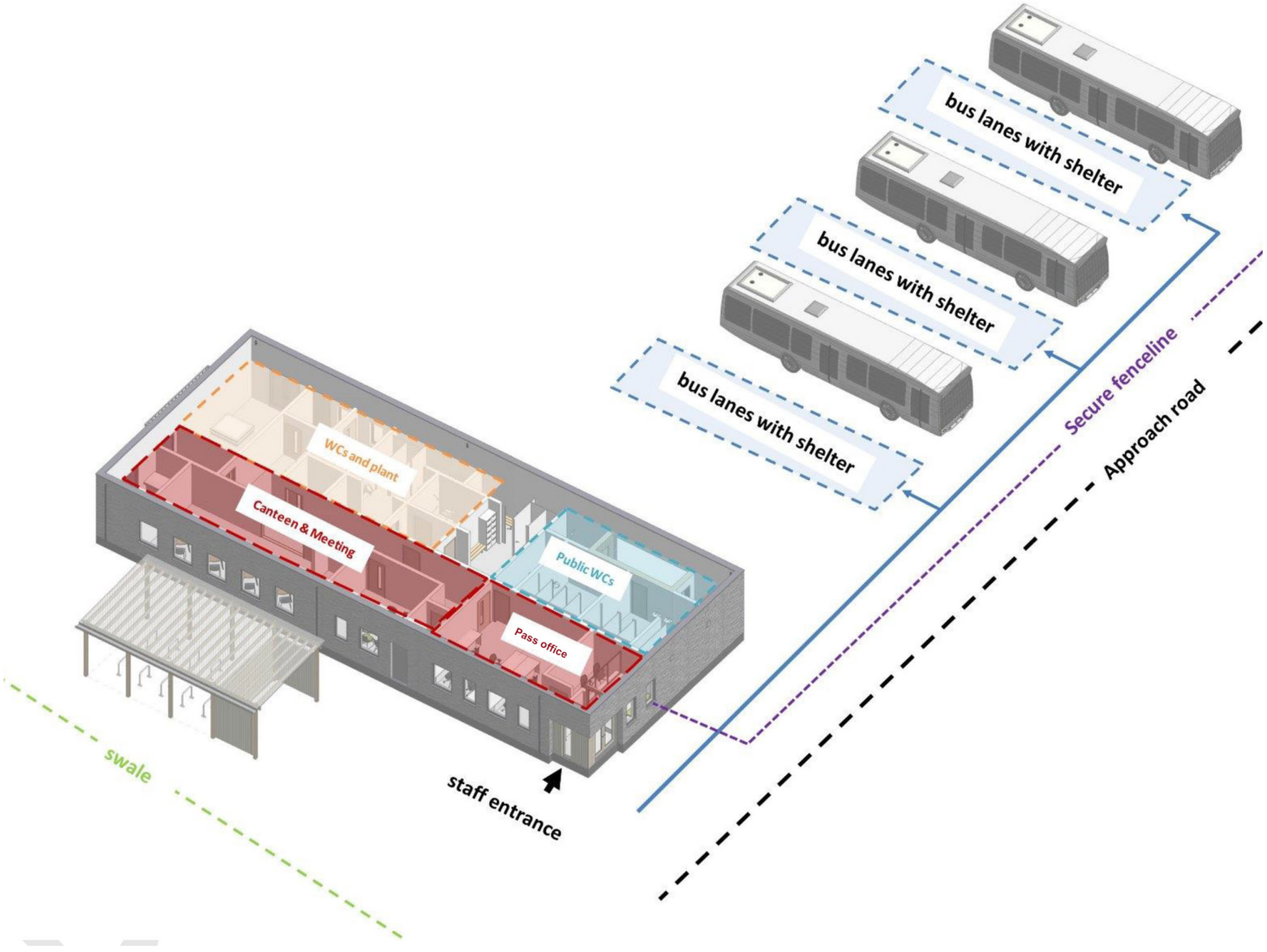


Figure 28 Bus transport facility building functional sketch

Figure 29 Bus transport facility building development sketch

Figure 30 Bus transport facility building computer generated image (CGI) viewed from the east

TYPES OF CONSTRUCTION AND STRUCTURAL SOLUTIONS

4.3.12. The building would be modular construction, with external cladding to be similar to the appearance of local materials.

4.3.13. The building, canteen offices and service facilities would be clad in a stacked stone-effect finish cladding. The detail of the construction behind the façade would be a combination of the use of modular units.

4.3.14. An indicative internal layout of the building is shown in figure 31. An exploded view is shown in figure 32.

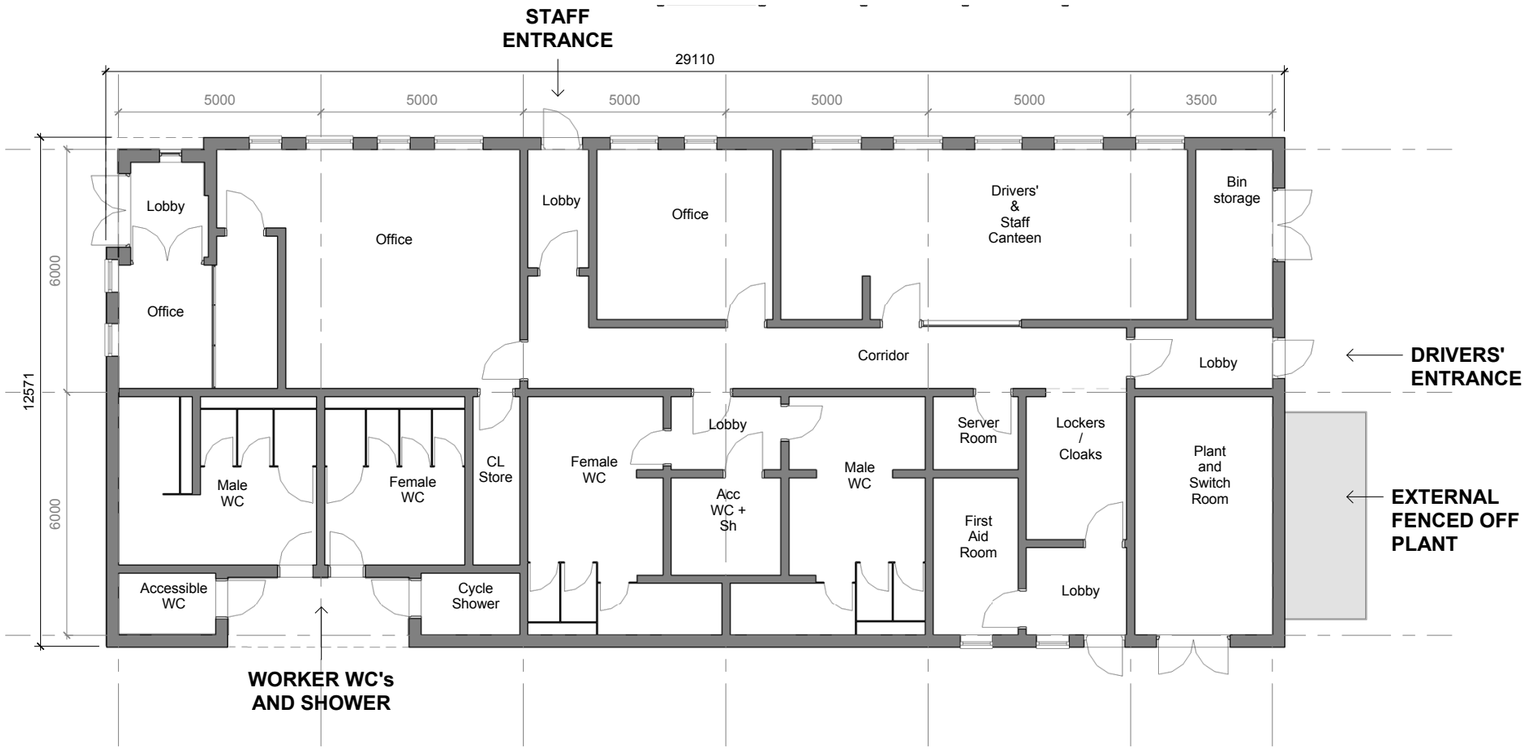


Figure 31 Bus transport facility building floor plan

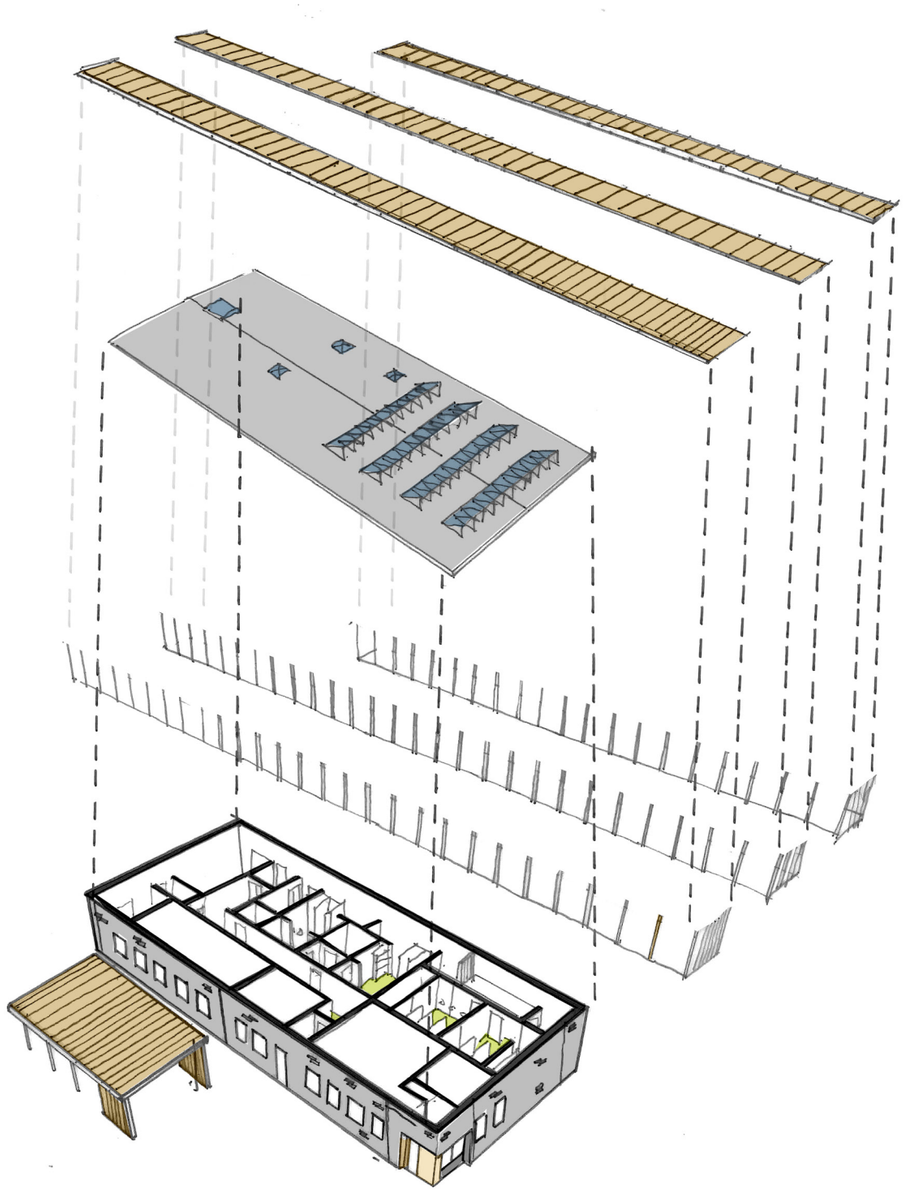


Figure 32 Exploded view of the building

ELEVATIONS AND SECTIONS

4.3.15. The design of the building has been considered in the context of its setting, at the centre of the site. The nature of the site requires a sensitive approach to the key buildings on the site. The proposed design, in its location, adheres to the following concepts:

1) Reducing the site impact. The building uses the contours and slope of the site to nestle in the surrounding landscape. The context has been carefully considered to reduce the visual impact and to shelter the buildings.

2) Use of simple forms. The building uses simple forms, providing an unobtrusive appearance on the skyline. Gently sloping roofs are used for the larger footprint and long elevations.

3) A simple and natural palette of materials and colours. A limited palette of natural materials and neutral colours is used to blend the building into its setting in the landscape.

4.3.16. The overall scheme design proposes stacked stone-effect cladding panels.

4.3.17. The stone-effect cladding responds to the traditional Welsh design of barns and outbuildings, anchoring the building to the landscape. There are some localised areas of timber-effect cladding around the doors, which, again respond to traditional available materials and aim to reduce the overall mass and density of the building (refer to figure 33 below). The external doors, windows and the curtain walling would be polyester powder coated aluminium framed with colours to match the stacked stone-effect cladding panels.

4.3.18. Various elevations and sections are shown in figure 33 and figure 34.

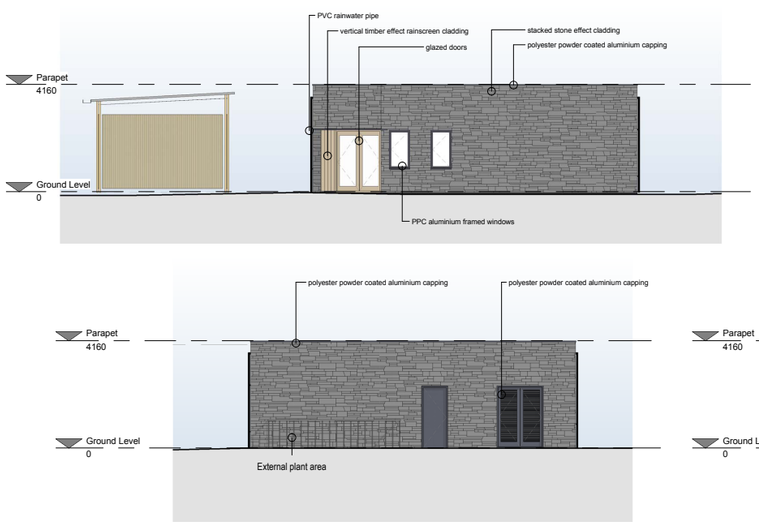


Figure 33 Bus transport facility elevations

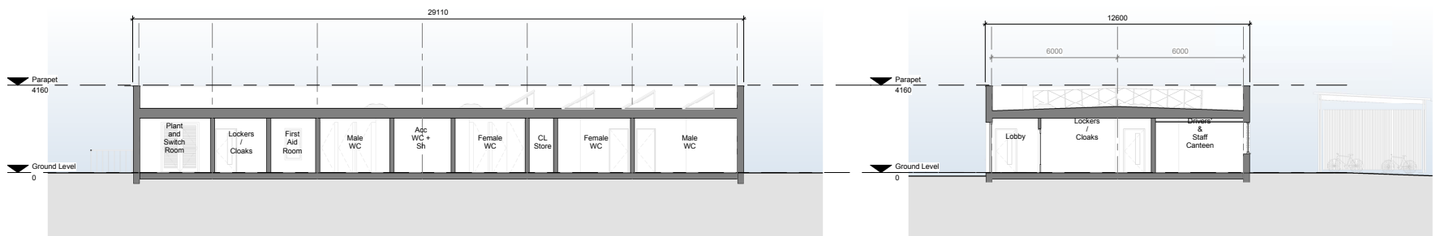
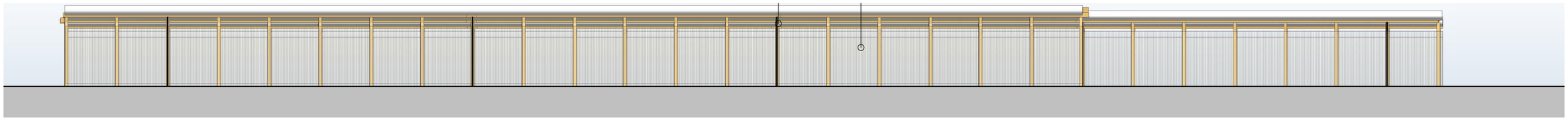


Figure 34 Building sections

BUS SHELTER DESIGN

4.3.19. The bus pick-up and drop-off zone would incorporate bus shelter canopies. Figure 35 shows bus shelter elevations. The design incorporates a canopy with supports on both sides and a slight pitch.

4.3.20. End walls would be timber-effect clad and side walls would have clear cladding to allow users to see buses and the number of people waiting in each shelter.



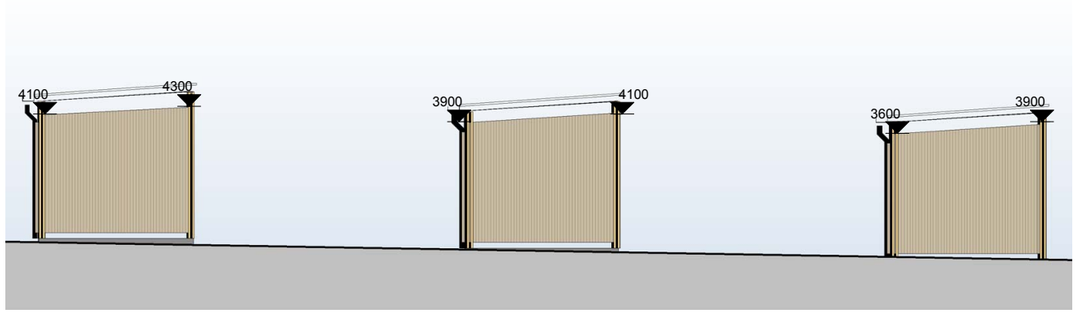


Figure 35 Bus shelter elevations and visualisation

INDICATIVE AREA SCHEDULE

4.3.21. Typical area allocations within the footprint for the bus transport facility building are as follows, based on the described numbers of permanent staff and drivers and anticipated throughput of workers. These figures are subject to refinement within the overall envelope.

4.3.22. This information should be read in conjunction with section 3.3 and the DCO parameters tables.

Table 7 Bus transport facility building area allowances

ITEM	AREA
Pass office	13m²
Administration office	37m²
Meeting room	18m²
Drivers' canteen, staff kitchen & vending area	42m²
Welfare (toilet areas workers, incl. accessible)	39m²
Welfare (toilet areas staff)	53m²
Circulation areas/lobbies	91m²
Drivers' lockers/cloaks	9m²
Prayer room / first aid	8m²
Server room	4m²
Plant and bin storage area	28m²

EXTERNAL BUILDING MATERIALS

4.3.23. The semi-rural setting and temporary nature of the scheme dictates a sensitive response to the appearance and massing of the scheme. The finishes and cladding materials have been considered by the design team in relation to series of considerations, which will apply to all the Associated Development for the Wylfa Newydd DCO Project.

4.3.24. The common types of finish/cladding have been assessed by the design team in relation to the considerations below, which are key for the operation of the facilities.

- Appropriate presence in the landscape, located in its Welsh setting as part of the overall landscape strategy for the scheme.
- The facilities are to be provided for the Main Construction stage of the Power Station only; they are temporary and would be removed at the end of this phase and the land returned.
- A robust and low maintenance approach is adopted with consideration for life-cycle costs.
- A cost effective solution is required, that can be delivered quickly and effectively and removed at the end of its lifespan.

4.3.25. The building materials palette is shown in figure 36.

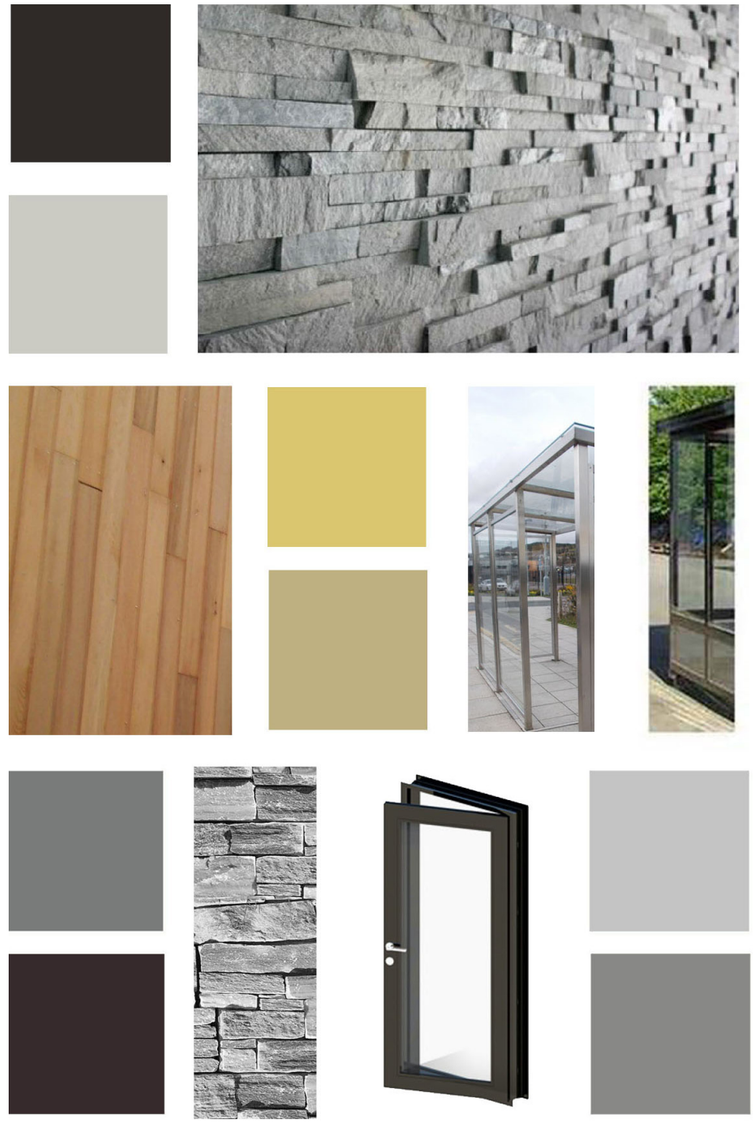


Figure 36 Building materials palette

4.4 BUILDING SERVICES ENGINEERING PROPOSALS

GENERAL REQUIREMENTS

4.4.1. The general requirements for the mechanical and electrical building services installations will be in accordance with the latest applicable technical guides. The development will be required to pass Part L2A 2014 for Wales and will utilise sustainable measures in order to do so.

4.4.2. The building design has been developed using both traditional and modular construction methods to assist with the speed of construction; utilising off-site manufacturing techniques to reduce the amount of on-site fabrication. The utilities capacities would be provided for full capacity in the initial phase.

INCOMING SERVICES

WATER

4.4.3. A new incoming cold water supply and fire main connection to the site would be taken from Welsh Water's existing infrastructure network as part of the site-wide infrastructure works. The point of connection/connections, confirmation of system pressure/capacity and details of any reinforcement requirements are to be developed.

GAS

4.4.4. There is no gas requirement for this site.

ELECTRICITY

4.4.5. The new building would be provided with an electrical supply. The incoming electrical supply for the facility would be metered.

MECHANICAL SERVICES

4.4.6. Natural ventilation, in the form of openable windows/louvres, would be provided where feasible.

4.4.7. For other rooms, mechanical ventilation would be provided via air handling units located within ceiling voids. These would generally consist of motorised dampers, panel/bag filters, supply and extract fans, and heat exchanger and direct exchange (DX) or electric coils.

4.4.8. Heating and cooling would be provided by variable refrigerant flow (VRF) all-electric fan coil units.

4.4.9. VRF systems would generally comprise externally mounted air cooled units and a number of internally mounted units linked with each other by refrigerant-carrying pipework and control cabling. The system would be capable of simultaneously heating and cooling via one, two or three BC controllers (branch control) using only two refrigerant pipes to the indoor units. Pumped condensate drains would be used to take out the condensate liquid.

4.4.10. Split or VRF cooling systems using refrigerant R410A would be installed. Internal fan coil units would be mounted either in a suspended ceiling or on a wall at high level. Server/comms rooms would be served by a split system.

4.4.11. The new premises would have a building management system (BMS) to monitor and control the operation of the mechanical services installation. In addition, metering would be provided and connected to the BMS.

PUBLIC HEALTH SERVICES

4.4.12. The domestic cold water services would run at high level through the ground floor to serve the toilets and other water users. The water services would be served directly from the Welsh Water mains network. The domestic hot water would be provided by local electrical point of use water heaters.

4.4.13. The whole system would comply with the requirements of BS EN 806 and BS 8558, the Water Supply (Water Fittings) Regulations 1999 and the latest guidance relating to minimising the risk of legionnaires' disease (Legionella).

EXTERNAL FIRE HYDRANTS

4.4.14. The site requires a private fire main in accordance with BS 9990.

4.4.15. A separate unmetered underground fire main would be provided throughout the site to ensure an adequate capacity and coverage is available using underground fire hydrants to BS 750.

ABOVE GROUND FOUL DRAINAGE SERVICES

4.4.16. A system of gravity soil and waste pipework would be installed within the new premises to convey the flow of foul water discharge from the toilets, wash hand basins, showers and sink units. It would connect to a new below-ground foul drainage network and into an on-site package treatment plant.

RAIN WATER SERVICES

4.4.17. A rain water drainage system connection would be provided for the bus transport facility building and would drain into the sustainable drainage system. Refer to surface water and drainage strategy in section 5.4 and figure 38 for further details.

ELECTRICAL SERVICES

4.4.18. A low voltage (LV) panel would be provided for the facility. The LV panel would be wall/floor standing and manufactured to meet British Standards.

4.4.19. A photovoltaic system is planned to be installed for the facility in accordance with building regulations requirements and Strategic Policies PS6 and PS7 and Policy ADN 2 in the JLDP. This would be in the form of a roof-mounted installation and connected to the main LV panel.

4.4.20. General lighting installation would be installed throughout the facility. It is intended generally that light emitting diode (LED) luminaires would be provided for the installation to meet the requirements of Part L of the Building Regulations.

4.4.21. The lighting system would generally be controlled via the use of lighting control modules which can be configured for a variety of control scenarios for different areas.

4.4.22. External lighting (e.g. car parks) would be provided with power from a distribution board located within the main LV switch room.

4.4.23. An emergency lighting system in accordance with BS 5266-1 would be installed throughout the facility. Emergency luminaries would generally take the form of emergency versions of the general luminaires. Exit signs would be of the non-maintained type. Non-maintained emergency bulkheads would be installed outside each emergency exit from the building.

4.4.24. 'Small power' installation would be installed throughout the facility. The small power installation will be designed, installed, tested and commissioned in accordance with BS7671 IEE (Institution of Electrical Engineers) wiring regulations.

4.4.25. A number of vehicle charging points would be installed on the site.

4.4.26. A fire alarm system would be provided throughout the facility. The category of coverage (as outlined in BS 5839-1:2013) for the new fire alarm system would be L1.

4.4.27. Lightning protection would comprise air terminations, roof tapes, down conductors and earth pits. Where possible, and in accordance with BS EN 62305, the building structure and fabric would be considered for use as an integral part of the lightning protection system.

4.4.28. It is anticipated that the LV installation shall incorporate surge protection device/s which shall be co-ordinated with the lightning protection system in accordance with BS EN 62305.

ACOUSTICS (BUS TRANSPORT FACILITY BUILDING)

4.4.29. A baseline noise survey has been undertaken for the bus transport facility building.

4.4.30. Walls between noise-sensitive spaces (i.e. offices, meeting rooms and welfare spaces) would be designed to achieve minimum weighted standardised level differences of varying standards, depending upon the noise levels generated in the source room, the sensitivity of the receiving rooms, and the privacy requirements of the receiving room.

4.4.31. Both the direct and flanking transmission paths will be considered in relation to the above. The specification of door sets will consider the potential for reducing the overall sound insulation performance of internal partitions. Acoustically rated door sets would be provided in critical situations, e.g. between circulation spaces and offices.

4.4.32. Sufficient sound absorption will be provided in shared circulation spaces (corridors and hallways) in order to control reverberant noise, in accordance with Section 7 of Approved Document E of the Building Regulations. This would consist of a Class C acoustically absorptive ceiling for all entrance halls and corridors, and/or an equivalent absorption area of 0.25m2/m3 of volume in corridors and hallways.

4.4.33. Additional treatments will be provided in specified rooms, such as carpets or alternative, soft-floor finishes in offices and acoustic suspended ceilings in offices and the staff canteen.

4.4.34. Mechanical services plant will be provided with suitable anti-vibration mounts where mounted to the modular steel structure. The air handling/heat recovery unit(s) will be of low-noise design. Limits on air-velocity shall be adopted to control air-regenerated noise within the ducts.

FIRE STRATEGY

4.4.35. An analysis of the fire safety infrastructure has been undertaken. It is a legal requirement that the Wylfa Newydd DCO Project meets the functional requirements of the Building Regulations 2010. The bus transport facility building has been evaluated to meet 'Welsh' Approved Document B Volume 2.

- B1 Means of Warning and Escape:
  - The bus transport facility building is designated as purpose group 3 (office), as no waiting areas are provided for passengers.
  - Detection shall be provided to BS 5839-1:2013 Category L1 coverage, with a fire alarm panel located at the entrance to the bus transport facility building.
  - Means of escape will be to 'Welsh' Approved Document B Volume 2 maximum travel distance requirements of 18m for single direction, and 45m for two directional means of escape.
  - No sprinklers are required.
  - Natural ventilation is required.
  - Escape lighting is to be provided internally and externally to the bus transport facility building in accordance with BS 5266-1:2016.
- B2 Internal Fire Spread - Linings:
  - Linings of the bus transport facility building will comply with Appendix A of 'Welsh' Approved Document B Volume 2, and be Class 0 or 1 to BS 476 or similar.
- B3 Internal Fire Spread - Structure:
  - Fire performance of the bus transport facility building structure will comply with Appendix A of 'Welsh' Approved Document B Volume 2.
  - Drivers and staff canteen, server room, bin store, and plant and switch room will be one-hour fire rated enclosures.
- B4 External Fire Spread:
  - External fire spread will comply with Section 14 and Appendix A of 'Welsh' Approved Document B Volume 2.
- B5 Access and Facilities for the Fire & Rescue Service:
  - Good fire tender access is provided to north, west and south sides of building.

4.4.36. Given the remote location, the site would be provided with a private fire mains sourced from a dedicated supply, to feed fire hydrants located within 90m of the building entry point, and not more than 90m apart. Each fire hydrant shall be provided with an indicator plate in accordance with BS 3251 and in accordance with BS 9990.

4.5 EXTERNAL LIGHTING PROPOSALS

DESIGN PHILOSOPHY

4.5.1. The Park and Ride would be used during the daytime and also at night for the transit of shift workers. The lighting requirement would vary from day-to-day of its operation and throughout each 24-hour period.

4.5.2. Designing to the maximum requirement would not be good practice and advances in controlling lighting have enabled an approach that is adaptive with consideration of the 2015 IACC SPG on lighting and the emerging dark skies policy, while also ensuring that during the night the lighting would enable staff and workers to use the facility safely and securely.

4.5.3. Lighting would be designed to avoid/minimise any light-spill onto adjacent buildings and onto any watercourse. Particular consideration has been given to avoiding light-spill to the stream to the east of the site and to the pond.

DESIGN ASSESSMENT

4.5.4. The lighting levels required for the facility are to be compliant in accordance with Park Mark standards and with BS 5489-1:2013 – Code of practice for the design of road lighting.

4.5.5. The lighting design would focus on the following areas:

- all car park zones;
- entrance to the site;
- bus waiting pick-up and drop-off zone; and
- pedestrian walkways (particularly the footpath from A5).

4.5.6. The design would work under the "broad consideration" that the Isle of Anglesey is working towards a Dark Sky Reserve Status. As such:

- consideration would be given to the presence of existing road lighting;
- lighting design would be carefully planned to minimise light spill onto adjacent and environmentally sensitive areas, watercourses, hedgerows and other habitats; and
- intelligent control would be specified, enabling the lighting to be zoned and dimmed to support the day-to-day operations of the facility.

4.5.7. Based on BS 5489-2013 Section 7.4.8.3 and the environmental zone classification of E2, consisting of rural surroundings with low district brightness as set out by the Institute of Lighting Professionals, the facility would be lit to a level of five lux on average with a uniformity of 25%. This is the minimum lighting level required. Luminaires would be required to have no tilt and be mounted at 6m high. A LED light source would be provided with a colour temperature of 4,000K. As this site will not be at full capacity for a number of years, it is important that lighting requirements are managed and zones are established.

BUS PICK-UP AND DROP-OFF AREA

4.5.8. The bus pick-up and drop-off area would have a higher lighting level at peak times to ensure the safety of all the Park and Ride users. Once the peak period is complete, the lighting would either dim to match the car parking levels or switch off if no movement is detected. Again, LED light sources linked with intelligent control and sensors allow for great flexibility in lighting. This would be managed in a manner sympathetic to the environment, also covering safety requirements for all Park and Ride users.

SITE ACCESS

4.5.9. Entrance to the site is off the existing junction roundabout. The roundabout lighting level would be dependent on predicted traffic volume and road speed. Due to the rural nature of the site and the low lighting levels within the facility, the roundabout would be lit to a minimum Conflict Zone of C5, which specifies an average of 7.5 lux with a uniformity of 40%.

EXISTING STREAM

4.5.10. There is a stream running through the site and a crossing that would link the various car park zones. The crossing and approach road to the stream would not be lit in order to mitigate potential light pollution in this area. Clear pedestrian walking routes would be highlighted and again these routes would be sensor-activated.

4.5.11. Bollard lighting has been considered, but it has been discounted due to quantity of luminaires required to achieve the required lighting levels. Furthermore, the E2 guidance stipulates the Upward Light Ratio (ULR), or light pollution above 90 degrees, cannot be more than 2.5% for an E2 classified zone. Bollard lights have more than a 2.5% ULR so they are not a suitable solution for an E1 or E2 zoned area and they would not comply with the Isle of Anglesey's Dark Sky policy. Lighting has been designed without any tilt, to reduce light pollution.

4.5.12. A proposed lighting plan is shown in figure 37.

Key

- Post top mounted on 6m columns. LED C.3000LM - 4000K
- Post top mounted on 8m columns. LED C.7000LM - 4000K
- Wall mounted at 5m. 38W 4000K 2D - Compact Fluorescent
- Flood attenuation areas

Figure 37 Lighting strategy

5 ENVIRONMENTAL SUSTAINABILITY

5.1 INTRODUCTION
5.2 ENERGY HIERARCHY
5.3 SUSTAINABLE DESIGN
5.4 WATER
5.5 SUSTAINABLE MATERIALS
5.6 NATURAL HABITATS
5.7 WASTE
5.8 CLIMATE CHANGE

Environmental sustainability

5.1 INTRODUCTION

5.1.1. Horizon is committed to the process for embedding consideration of sustainability going forwards by continuing to develop the structured exercise of identifying, capturing and documenting sustainable design opportunities and measures. This process fosters good sustainable design practices, relating to design decisions that are in the first instance practicable (i.e. cost effective), and demonstrate positive outcomes against Horizon's Sustainability Assessment's Objectives.

5.1.2. The overarching approach to sustainable design and construction of the Wylfa Newydd DCO Project is set out in Volume 1 of the DAS (Application Reference Number: 8.2.1) and in the Sustainability Statement submitted in support of this application (Application Reference Number: 8.17). This chapter outlines environmental sustainability measures that would specifically apply to the Park and Ride element of the Wylfa Newydd DCO Project.

5.1.3. This chapter summarises how the design of the Park and Ride has taken into account sustainability during the design development process to date, with a view to passing Part L2A 2014 of the Building Regulations for Wales. Please refer to the Sustainability Statement (Application Reference Number: 8.17) and Volume 1 of the DAS for further details. Appendix 1-6 of Volume 3 of the DAS includes a review of sustainability guidance from national and local planning guidance, and identifies key sustainability themes. This chapter of the report describes how the development has incorporated good practice sustainable design measures in relation to each of these themes and includes recommended next steps to ensure that sustainability is embedded in the development going forward.

5.2 ENERGY HIERARCHY

5.2.1. A low energy design shall be achieved by adopting the following hierarchy of strategic principles, ordered to represent their relative potential benefits both economic and practical.

A. MINIMISE USE

5.2.2. Internal temperatures – allow the internal temperature to vary according to external conditions.

5.2.3. Lighting – consider lighting levels appropriate to tasks.

B. REDUCE WASTE

INSULATION

5.2.4. Insulation optimised to reduce the heating and cooling requirement.

AIR TIGHTNESS

5.2.5. Build tight and ventilate right – the building will be well sealed using robust building details to ensure that the ventilation is controlled.

CONTROLS AND ZONING

5.2.6. The building is zoned and the controls appropriate such that when areas of the building are not in use the services are off.

C. RECYCLE

HEAT RECOVERY

5.2.7. Efficient heat reclaim systems have been considered for all mechanical ventilation systems.

D. GENERATE

5.2.8. Renewable energy systems have been considered to reduce and offset the carbon impact of the development.

5.3 SUSTAINABLE DESIGN

GENERAL

5.3.1. The design has incorporated the following sustainability measures:

- use of topsoil for landscaping including screening;
- identification and protection of existing environmental features to include hedgerows, stonewalling and the Nant Dalar Hir;
- advanced planting to reinforce field boundaries;
- use of native planting species;
- efficient use of cut and fill, management of natural resources;
- choice of hard landscaping materials (asphalt, concrete blocks and reinforced gravel tracks) is based on flexibility and robustness during construction and operation, ease of decommissioning when restoring the site to its current use and the potential to re-use materials both on- and off-site;
- use of sensitive cut-off lighting to minimise light spillage; and
- restoration of historic field pattern with enhanced biodiversity.

SITE ANALYSIS, LAYOUT AND PASSIVE DESIGN

5.3.2. A landscape constraints and opportunities mapping exercise was undertaken for the site taking into account key views, watercourses, existing vegetation types, landscape features, ecological features and access points. The proposed layout of the Park and Ride has been chosen to reflect the existing field boundary pattern, which would also help to break down the scale and impact of the areas of parking. The scheme will seek to maximise the retention of key site features such as hedgerows and watercourses.

5.3.3. It is proposed to locate the bus transfer area and building centrally on the site to reduce visual and noise impacts from the facility and to minimise the pedestrian route to the building from car parking areas and the proposed public bus stop on the A5. Circulation would be accommodated within the retained field pattern with hedging flanking the central road and defining dedicated pedestrian routes connecting the parking areas with the bus transfer facilities.

5.3.4. The proposed site and building will be designed to blend in with the local landscape, for example the building façades would incorporate a palette of local/ natural materials and the proposed planting would reflect local character and enhance ecology.

5.3.5. The proposed building avoids openings/glazing on the north-facing elevation which in turn is likely to reduce unwanted heat loss and improve thermal efficiency. The south and east-facing façades may benefit from some solar gain, however unwanted solar gain is acknowledged as a potential issue for the west-facing waiting area. Therefore, appropriate measures would be proposed for inclusion at the detailed design stage, for example, shading and effective displacement ventilation.

5.3.6. Generally, the glazing to solid wall ratio on the external façades is specified to allow reasonable levels of natural daylight whilst reducing unwanted heat loss.

ENERGY AND CARBON

5.3.7. The development is proposed to be constructed from pre-fabricated/flat pack components. Off-site construction can offer a number of benefits in terms of reducing energy use and carbon emissions including the following:

- design to meet and exceed latest standards for energy efficiency;
- due to minimal site deliveries, there can be significantly fewer vehicle movements on a modular building site than a traditional building project, reducing emissions associated with vehicle use;
- typically, less energy is required to produce a modular building than a traditionally constructed one; and
- off-site manufacture to tight tolerances can help create very airtight buildings, minimising draughts that reduce thermal efficiency.

5.3.8. The proposed design follows a 'fabric first' approach with low U-values and a high level of air tightness. The proposed building services include efficient heat pumps and photovoltaic panels on the bus transport facility building.

5.3.9. The building services design proposals currently include energy sub-metering and monitoring for all major energy uses within the buildings. Any high load areas would also be sub-metered. This would be managed by a central BMS which will allow for more effective energy management during operation.

5.3.10. Highly efficient LED lighting is currently proposed for internal and external areas. External lighting would be controlled (e.g. photocell with time switch) to avoid operation during daylight hours.

5.3.11. It is proposed that a permanent power supply would be available on-site from the start of construction to enable construction site activities to be powered by grid electricity where feasible, thus providing energy and carbon savings compared with using electricity generated on-site through less efficient means, e.g. diesel generators.

POLLUTION

5.3.12. The external lighting would be specified in accordance with the Institution of Lighting Professionals' guidance note for the reduction of obtrusive light which would ensure that external lighting is concentrated in appropriate areas and upwards light is minimised, reducing unnecessary light pollution, nuisance to neighbours and light-spill onto ecologically sensitive areas.

5.3.13. The proposed bus transport facility building would be located centrally within the site which maximises distance to noise receptors. Noise assessment will be undertaken at the detailed design phase which will further inform the design and inclusion of any necessary noise mitigation measures.

5.3.14. The proposed heating source is electricity which has low NOx emissions at a local level, thus providing a local air quality benefit.

5.3.15. The illustrative design allows for the mitigation of watercourse pollution through the use of SuDS techniques, such as permeable paving, where feasible. Oil interceptors are proposed for areas where there is a higher risk of watercourse pollution such as the vehicle manoeuvring and delivery areas. All water pollution prevention systems shall be designed and installed in accordance with the recommendations Pollution Prevention Guideline 3 (PPG 3) and/or where applicable, the SuDS manual (CIRIA, 2015).

FLOODING, SURFACE WATER RUNOFF AND CLIMATE RESILIENCE

5.3.16. As part of the Flood Consequences Assessment being undertaken for the development, further modelling has been carried out to confirm the risk of flooding from all sources, including an allowance for climate change.

5.3.17. The proposals for the development include measures to minimise surface water runoff using sustainable drainage techniques, where feasible, including a best practice allowance for climate change based on the expected lifespan of the development. For further details, refer to section 5.4.

5.3.18. Thermal modelling is proposed at the detailed design stage to identify any additional measures that may need to be included in the design to ensure that the project is resilient to expected peak temperatures during the lifetime of the development.

5.4 WATER

5.4.1. The water and drainage design aims to identify:

- the surface water drainage strategy including permeable paving proposals and any discharge into local watercourses and preventing pollution;
- the foul drainage strategy including any wastewater treatment package plant requirements; and
- the potable water strategy.

5.4.2. The design proposals include water-efficient fittings such as low flush toilets which help reduce water consumption. More detailed specifications will be developed at a later stage in the design process in accordance with recognised best practice for water efficiency.

5.4.3. The proposals also include water metering and monitoring, including sub-metering of major water consuming items/facilities. This allows for more effective water monitoring and management during operation.

5.4.4. Proposals for the landscaped areas exclude the need for any dedicated mains-fed irrigation. This section provides the water and drainage proposals associated with the design, including the strategy covering proposed potable water networks and foul and surface water drainage networks at the proposed facility.

SURFACE WATER DRAINAGE REQUIREMENTS

5.4.5. A new surface water network is proposed to serve the site's drainage requirements, which include drainage of the bus transport facility building roof, parking areas, permeable and impermeable hardstanding areas. The proposed surface water network would be a piped system fed by site linear/gully drainage receptors. Storm water attenuation would be provided in line with The SuDS Manual C753 in the form of a permeable paving system in the car parking areas and a modular below-ground geocellular storage system underneath the bus parking area. Additional attenuation has been incorporated into the scheme in the form of two flood attenuation areas to the north-east of the site.

5.4.6. The surface water strategy is visualised in figure 38.

5.4.7. Surface water flows would be discharged to the local watercourse, which runs through the eastern part of the site via various existing ditches. Discharge flows would be limited to greenfield runoff rates via a flow control chamber.

FOUL WATER DRAINAGE REQUIREMENTS

5.4.8. Initial discussions have been held with the local Water Authority to identify foul sewer services which have shown connection feasibility. There are no existing foul sewers in the area. Instead, foul flows would be discharged to an on-site package treatment plant. Flows would be treated and discharged into the proposed surface water network.

POTABLE WATER REQUIREMENTS

5.4.9. Initial discussions have been held with the local Water Authority to identify potable water services which have shown connection feasibility. There is a known potable distribution main that runs along the existing A5, south of the site, from which it is proposed to take a potable water supply for the site.

Figure 38 Surface water strategy

5.5 SUSTAINABLE MATERIALS

5.5.1. The proposals are designed to make efficient use of materials (e.g. off-site modular construction, minimal sub-base depth to car parking).

5.5.2. Preference would be given to the use of sustainable materials.

5.5.3. During detailed design, the following sustainable material use measures will be reviewed and applied where feasible:

- the use of materials with recycled content;
- the use of materials with Environmental Product Declarations; and
- the use of responsibly sourced materials (e.g. BES 6001 certified, FSC timber).

5.6 NATURAL HABITATS

5.6.1. The development site has been surveyed by a suitably qualified ecologist to identify any features of ecological value and protection and mitigation measures required. The findings and recommendations have been incorporated in the landscape design. This has been described in more detail in Section 4.2 Landscape proposals.

5.6.2. Existing features of ecological value including streams, ditches, hedgerows and badger setts would be protected through the incorporation of appropriate buffer zones.

5.6.3. The proposed layout of the Park and Ride has been chosen to reflect the existing field boundary pattern which assists with maximising the retention features such as hedgerows and watercourses.

5.6.4. The proposed landscape design incorporates areas of species-rich grassland adjacent to the northern, western and eastern boundaries. It is proposed that the existing tree and shrub planting on the southern boundary would be retained and enhanced to screen views of the site.

5.6.5. The proposals seek to reduce temporary land use during construction through siting the construction compound on an existing area of hard standing formerly occupied by agricultural buildings.

5.6.6. The development is planned to be in use for the period of construction of the Power Station. Following this period, the site would be reinstated in accordance with overarching landscape strategy. This would include restoring the original field boundary pattern, appropriate habitats, planting and landscape features such as hedgerows and stone walls.

5.7 WASTE

5.7.1. The waste disposal system will be designed to incorporate the following:

- a fully enclosed area set aside for the parking of commercial waste bins for paper, etc.;
- separate collection and storage for waste; and
- in the offices, central wastebaskets will be provided to separate recyclable waste at source.

5.7.2. The amount of cut and fill would be minimised to reduce the amount of waste removed from site, for example minimal sub-base is proposed below permeable paving which would reduce the cut required. It is anticipated that all excavated material would be re-used within the Wylfa Newydd Development Area.

5.7.3. The bus transfer facility building proposals are based on the inclusion of off-site manufactured components. WRAP (Waste and Resources Action Programme) identify that this construction method can support resource efficient construction thus reducing waste.

5.7.4. A central space for the storage and collection of recyclable and general waste is proposed in the bus transport facility building, accessed via external doors. The area shall be easily accessible to both building occupants and by waste management contractors to facilitate collection. There would be waste management services restricted to general waste from offices and welfare facilities would be handled by a waste carrier licensed for this activity. Suitably labelled receptacles would be provided and their use explained as part of the site induction. For waste produced as part of construction activities, a contractor(s) would be nominated to ensure that all legal compliances are met with regards to waste management and Horizon's Management of Materials and Waste procedure. The responsible contractor will retain waste transfer notes on-site for audit purposes.

5.7.5. Consideration will be given to waste minimisation using Horizon's principles of waste hierarchy minimisation (in decreasing order of preference):

- Prevention and minimisation
- Preparing for re-use
- Recycling
- Other recovery
- Disposal.

5.8 CLIMATE CHANGE

5.8.1. The NRW flood risk mapping shows that the site has a risk of flooding. As part of the Flood Consequences Assessment being undertaken for the development further modelling will be carried out to confirm the risk of flooding from all sources.

5.8.2. The proposals for the development include measures to minimise surface water runoff using sustainable drainage techniques, where feasible, including a best practice allowance for climate change based on the expected lifespan of the development.

5.8.3. Attenuation measures are proposed to ensure that discharge rates are less than or equal to greenfield runoff rates while maintaining flow rates into the SSSI.

5.8.4. The design team has used thermal modelling software which analyses the proposed construction materials and mechanical, electrical and plumbing services. It has been used to undertake heat gain and heat loss analysis for all spaces within the building.

5.8.5. Heating is to be provided to maintain a minimum temperature of 21°C + 2°C at all times. If the external temperature rises above 30°C the internal temperature will be controlled to maintain a 5°C differential. This is to be achieved by the most energy efficient means.

6 COMMUNITY SAFETY

6.1 NATURAL SURVEILLANCE
6.2 COMMUNITY

Community safety

6.1 NATURAL SURVEILLANCE

MANAGEMENT REQUIREMENTS

6.1.1. The car parks will achieve Park Mark Standard accreditation.

6.1.2. The plan is for the facility to be managed by security personnel located in an office in the bus transport facility building and for them to be present during all hours of operation.

6.1.3. The site would have a public address system with speakers located at strategic locations to assist the management team in responding to any situations that require users to be directed away from any particular incident.

FENCING STRATEGY

6.1.4. Consideration has been given to meeting the dual aims of security and minimising visual impact in the selection of the perimeter fencing system. Wired mesh / Paladin type fencing (1.8m high) is proposed to the perimeter of the parking areas. The site perimeter is to be a combination of banking (approximately a one in three slope) and trees and hedges utilised to reduce the visual impact.

6.1.5. Figure 39 shows the security strategy including the fencing proposals.

Figure 39 Security strategy

LIGHTING

6.1.6. Column lighting would be provided for night access to minimise light pollution. External lighting would be to the minimum lux level required to meet applicable standards. Five and eight-metre-high lighting columns are expected to be required.

6.1.7. Lighting would be provided within the boundary of the site and would be a combination of column and building wall-mounted. When the facility is unmanned, the lighting would be minimal. A CMS would be utilised which generally be managed from the main facility building. However, it can also be accessed remotely.

ACCESS BARRIERS AND CONTROL SYSTEMS

6.1.8. Automatic access barriers are required at the entrance to the facility. The barriers would work on an ANPR basis. Visitors would have to register 24 hours in advance. Exit barriers / floor barriers would be provided and these would generally lift automatically on vehicle approach. Gates would be provided on the fence line at the access points.

CCTV

6.1.9. CCTV would be provided at strategic locations within the site.

- CCTV can be located on lighting columns or on 5m height camera columns (dependent on CCTV/lighting survey and design).
- All exits to be covered by CCTV for the purposes of identification.
- Cameras on or around buildings locations, for pedestrian walkways and overview of car parks omitted from figure for security purposes.

SAFETY AND SECURITY

6.1.10. The design of the car park is proposed in accordance with the Park Mark Safer Parking standard. This allows for a low risk, safe and secure environment across the site. The following security provisions would be incorporated into the design.

- fencing would be provided as a minimum around the bus drop-off areas, all parking areas and the pedestrian route from the A5;
- external lighting designed to BS5489 and Park Mark standards;
- controlled and manned access barriers would be required to the entrance and exit to the site; and
- CCTV.

6.1.11. A review of best practice safe access requirements has been undertaken, this identified that the following measures to maximise pedestrian and cyclist safety have been included in the design:

- footpaths / cycle paths on-site provide direct access from the site entrance to the building entrance;
- drop-off areas provide direct access to pedestrian footpaths, therefore avoiding the need for the pedestrian to cross vehicle access routes;
- dedicated pedestrian crossings are provided where pedestrian routes cross vehicle access routes;
- the lighting for access roads, pedestrian routes and cycle lanes is compliant with BS5489-1:2013 Lighting of roads and public amenity areas; and
- parking and turning areas are designed for simple manoeuvring, thus avoiding the need for repeated shunting.

6.1.12. It is proposed to erect security fencing around the site establishment facility during the Main Construction stage. Entry to the site would be through electronic, pass activated turnstiles. All personnel working on the Wylfa Newydd DCO Project would have a site-specific safety induction prior to the issue of a security pass. A security facility would be provided at the entrance to the site. All vehicles and pedestrians accessing and leaving the site would be logged in and out. Visitors would be escorted at all times during their time on-site.

6.2 COMMUNITY

HEALTH, WELL-BEING AND SOCIAL ISSUES

6.2.1. The proposals include the provision of an external window to all offices and meeting rooms. This would provide a view out to allow occupants to refocus their eyes and enjoy an external view, thus reducing the risk of eyestrain and breaking the monotony of the indoor environment.

6.2.2. All regularly occupied spaces within the buildings are specified to be fitted with user operated glare control, such as blinds, to remove unwanted glare when required.

6.2.3. Ventilations rates for occupied spaces in the development are specified to good practice standards.

6.2.4. Internal lighting shall be designed to be in accordance with the Society of Light and Lighting (SLL) Code for Lighting 2012 to provide best practice lighting standards. External lighting would be designed in accordance with best practice standard BS5489.

6.2.5. The design proposal allows for appropriate zoning of internal lighting to give building staff and building occupants (where applicable) a good level of control.

6.2.6. The design incorporates walkway coverings at bus entry locations, thus sheltering site users from inclement weather.

6.2.7. It is proposed that the construction contractor would be required to comply with the Considerate Constructors Scheme to minimise nuisance to the local community.

ADJACENCIES TO OTHER FACILITIES

6.2.8. There are a number of facilities located close to the site. These include the go-kart centre and an elderly residential home to the north-east.

7 ACCESSIBILITY

7.1 INCLUSIVITY ACCESS AUDIT
7.2 TRANSPORT AND ACCESS
7.3 ACCESS TO AND WITHIN SITE

Accessibility

7.1 INCLUSIVITY ACCESS AUDIT

7.1.1. An inclusivity access audit has been undertaken for the site.

7.1.2. It is intended that there should be no discrimination against any person wishing to work on the Wylfa Newydd DCO Project, either on a temporary or a permanent basis.

7.1.3. The site will be fully compliant with the recommendations of BS 8300 Design of buildings and their approaches to meet the needs of disabled people. Code of practice.

7.1.4. The proposals are deemed to be in accordance with the regulations regarding inclusivity and Policy PCYFF 3 in the JLDP, with the inclusion of the following:

- access and security controls at the site entrances/exits;
- provision of disabled spaces close to the bus transfer facility building (per table 1);
- signage;
- external benches or other furniture for relaxation;
- refinement of the design of toilets and hygiene provision, including showers;
- changing facilities; and
- building management, including staff training, to cater for those with disabilities.

7.1.5. It is assumed that disabled construction workers would not use the Park and Ride and, instead, would get priority parking at the Wylfa Newydd Development Area.

7.1.6. In the staff car park, 10 accessible spaces would be provided, which is over that required based on the number of staff, because:

- there is more than adequate space in the staff car park; and
- as a buffer to accommodate changing needs during Main Construction.

7.2 TRANSPORT AND ACCESS

7.2.1. The proposed Park and Ride is a key component of Horizon's ITTS (Application Reference Number: 6.3.2) that would help to support the following:

- encouraging rail travel where feasible;
- providing direct bus links serving settlements to the north and east of Anglesey;
- providing direct bus links from the main transport interchanges at Holyhead and Valley;
- providing dedicated shuttle bus services between the Site Campus and the Wylfa Newydd Development Area;
- parking management; and
- encouraging walking and cycling.

7.2.2. The proposed entry access road for workers' vehicles is designed with the security barrier set approximately 200m into the site, to reduce potential congestion on roads immediately adjacent to the site.

7.2.3. The proposals include covered, secure cycle storage for staff and users of the facility accordance with IACC SPG. Showers and changing facilities for staff and users of the Park and Ride are also proposed within the bus transfer facility building. Cycle paths on-site would link to a proposed shared footway and cycle path on the A5.

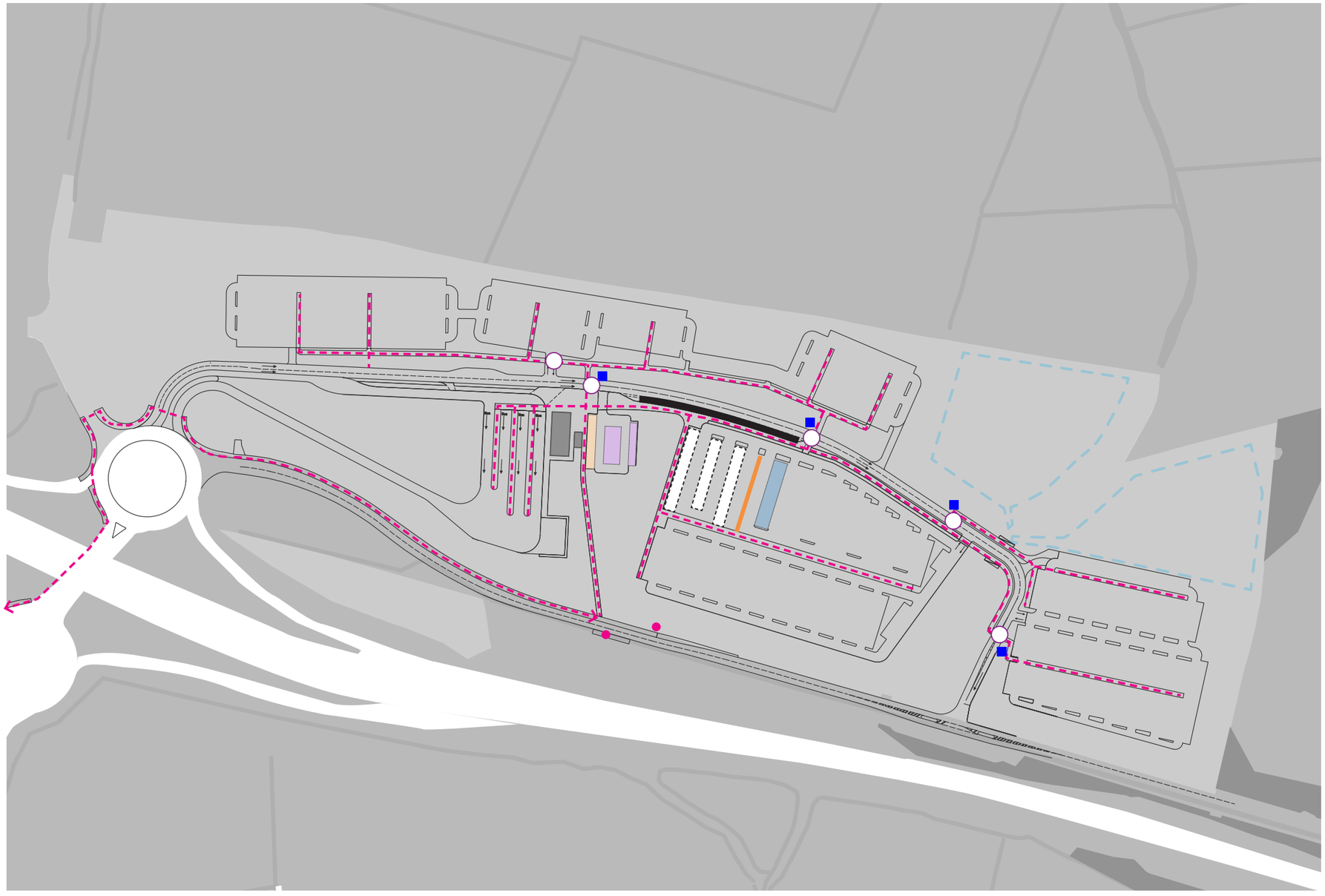
7.2.4. It is proposed that a charging points for electric vehicles are also provided on-site, thus facilitating the use of alternative fuel vehicles.

7.2.5. The Traffic and Transport Strategy (Application Reference Number: 6.3.2) would apply to the construction and the operational phase of this development thus helping to reduce transport-related impacts.

7.3 ACCESS TO AND WITHIN SITE

7.3.1. Access to the Park and Ride would be via a number of new dedicated vehicle and pedestrian entrances and exits. Access to the facility for buses and workers' vehicles is intended via the existing A55-A5 junction roundabout, at the western tip of the site. Workers' vehicles would exit to the A5 from the south-east of the site. Buses would exit via the existing junction roundabout. The road accesses would have a minimum width of 7m with a minimum radius of curvature of 7m. Pedestrians would access the facility via a point adjacent to a new proposed bus stop on the A5.

7.3.2. The accessibility strategy for the site is visualised in figure 40.



Legend

- Main pedestrian route
- Safe crossing points
- Pedestrian drop off / pick up
- Internal bus stops
- Public bus stops
- Electric vehicle parking spaces
- Minibus parking spaces
- Accessible parking spaces
- Motorcyle parking spaces
- Staff parking spaces
- Flood attenuation areas

Figure 40 Accessibility strategy

8 MOVEMENT

8.1 GENERAL
8.2 TRANSPORT AND TRAVEL
8.3 HIGHWAYS

Movement

8.1 GENERAL

8.1.1. Figure 40 and figure 41 show indicative vehicle and pedestrian movements associated with this facility as well as entrances and exits for vehicles and pedestrians.

USERS' VEHICULAR ACCESS

8.1.2. Workers driving to the facility would enter through the main entrance at the western tip of the site. Vehicles may queue along a stretch of access road before proceeding through a security barrier. Vehicles would then proceed to one of the parking zones, allocated in accordance with the nature of their visit.

8.1.3. Persons would then walk along one of the designated pedestrian routes to the bus transport facility building.

8.1.4. Vehicles would leave the site through a single lane exit at the south-east of the site, onto the A5. The majority of traffic would be expected to turn right towards the roundabout and then onto the A55.

8.1.5. Opportunities for a zone for private vehicle drop-off and pick-up have been incorporated into the design.

8.1.6. In the event a vehicle is not granted access, it would drive through a gap to the bus access road and then proceed to exit the site as per a bus.

BUSES

8.1.7. Buses would enter the site through the main entrance along a separate access road to that provided for the workers. They would then proceed directly to the bus waiting pick-up and drop-off zone and park in one of the allocated bays. Drivers may walk to the bus transport facility building to use the amenities.

8.1.8. Buses would exit onto the existing junction roundabout.

8.1.9. Buses may also travel along the main access/spine road during off-peak hours to collect persons via a number of bus stops situated along the access/spine road.

DELIVERIES AND STAFF

8.1.10. Vehicles undertaking deliveries of day-to-day consumables and/or facilities management would enter the site through the bus access, pass through the barrier and proceed to park in an allocated delivery parking zone.

8.1.11. These vehicles would exit via the existing roundabout.

PEDESTRIANS AND CYCLISTS

8.1.12. Pedestrians and cyclists would enter the site through a dedicated entrance at the south of the site, adjacent to the new proposed bus stop on the A5. They would follow a path directly to the bus transport facility building and a cycle store.

SERVICING AND MAINTENANCE

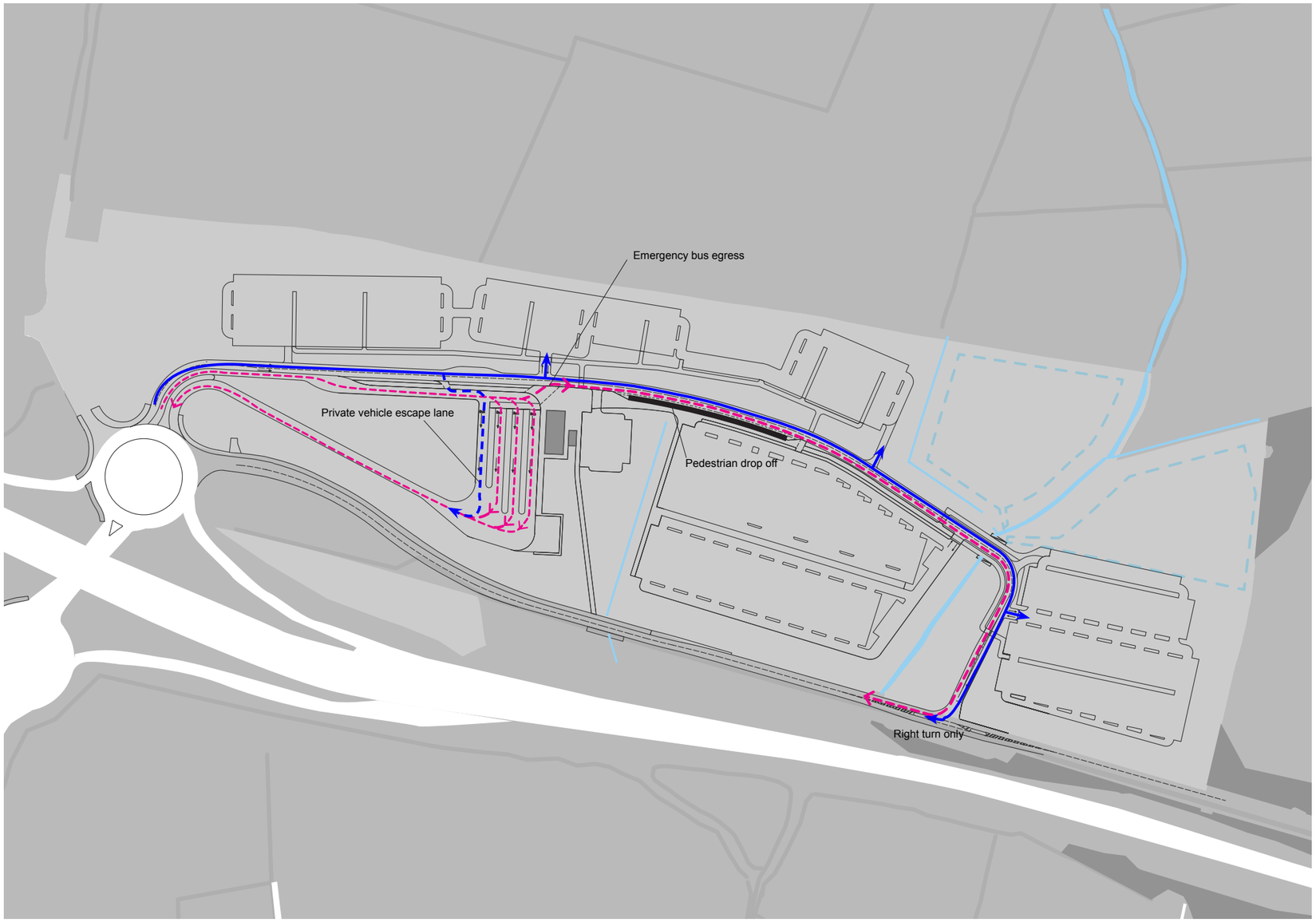
8.1.13. Vehicles undertaking deliveries of day-to-day consumables and/or facilities management would enter the site through the car access, pass through the barrier and proceed to park in an allocated delivery parking zone within the staff parking area.

8.1.14. These vehicles would exit via the existing roundabout.

8.2 TRANSPORT AND TRAVEL

8.2.1. A multi-modal approach to the Traffic and Transport Assessment has been adopted to assist in designing the development to provide suitable facilities and infrastructure that could encourage travel by sustainable modes to minimise the impact of travel demand on both the local and strategic transport network. This includes assessment of transport-related effects both on-site and off-site, in particular consideration of the operation of junctions and provision for access to bus services and the cycle network.

8.2.2. For further details, please refer to chapter C2 (Application Reference Number: 6.3.2) of the Environmental Statement.



Legend

- Private vehicle circulation
- Private vehicle escape route
- Bus circulation
- Pedestrian drop off / pick up
- Flood attenuation areas

Figure 41 Vehicular movement strategy

8.3 HIGHWAYS DESIGN PHILOSOPHY

8.3.1. This section provides a summary of the proposals for improving local highways as required to support the anticipated key movements of the workforce.

HIGHWAYS LAYOUT

8.3.2. The main access is off the A5/A55 Junction 4 north roundabout. The proposed layout follows a desire to give priority to buses exiting the facility over the cars:

- to minimise cross over of traffic as much as possible;
- to minimise the impact on the A5 and A55 for vehicles entering the site;
- to position the bus access close to the existing roundabouts;
- to separate the bus entrance from the car entrance as quickly as possible within the Park and Ride;
- to maintain access north along the Bodedern road and into the private access and the vehicle testing station; and
- to provide safe access back on to the A5/A55 for road users travelling south along the Bodedern road, exiting the private access and the vehicle testing facility and exiting the Park and Ride site.

HIGHWAYS DESIGN KEY POINTS

8.3.3. Key points of the highways design are as follows:

- A double lane car entrance maximises the traffic entering the car park zones whilst minimising impact on the existing highway and allowing for a more effective flow into the respective parking zones.
- The buses would exit the site close to the A55 junction onto the existing roundabout (see figure 41 Vehicular movement strategy above).
- The access and egress points have been positioned to separate bus and car movements and give priority to the buses ensuring as much free flow as possible.
- The internal road system for workers is a two-lane one-way road from the existing roundabout through the site exiting onto the A5 and then the A55. This road provides access to the five parking zones. Walkways provide workers with a safe route from their vehicles to the bus transport facility building and hence entry to the transportation zone and onward journey to their destination by bus either to their accommodation or the construction site.
- With worker accommodation now mainly focused at the Site Campus, the traffic numbers for the junction traffic model, having been reduced, now indicates that cars travelling to the Park and Ride from the A55, mainly from the east, would no longer require two-lane entry through the roundabouts and interlinking carriageways, to prevent queueing back onto the A55.

8.3.4. The highways proposals are shown in figure 42.

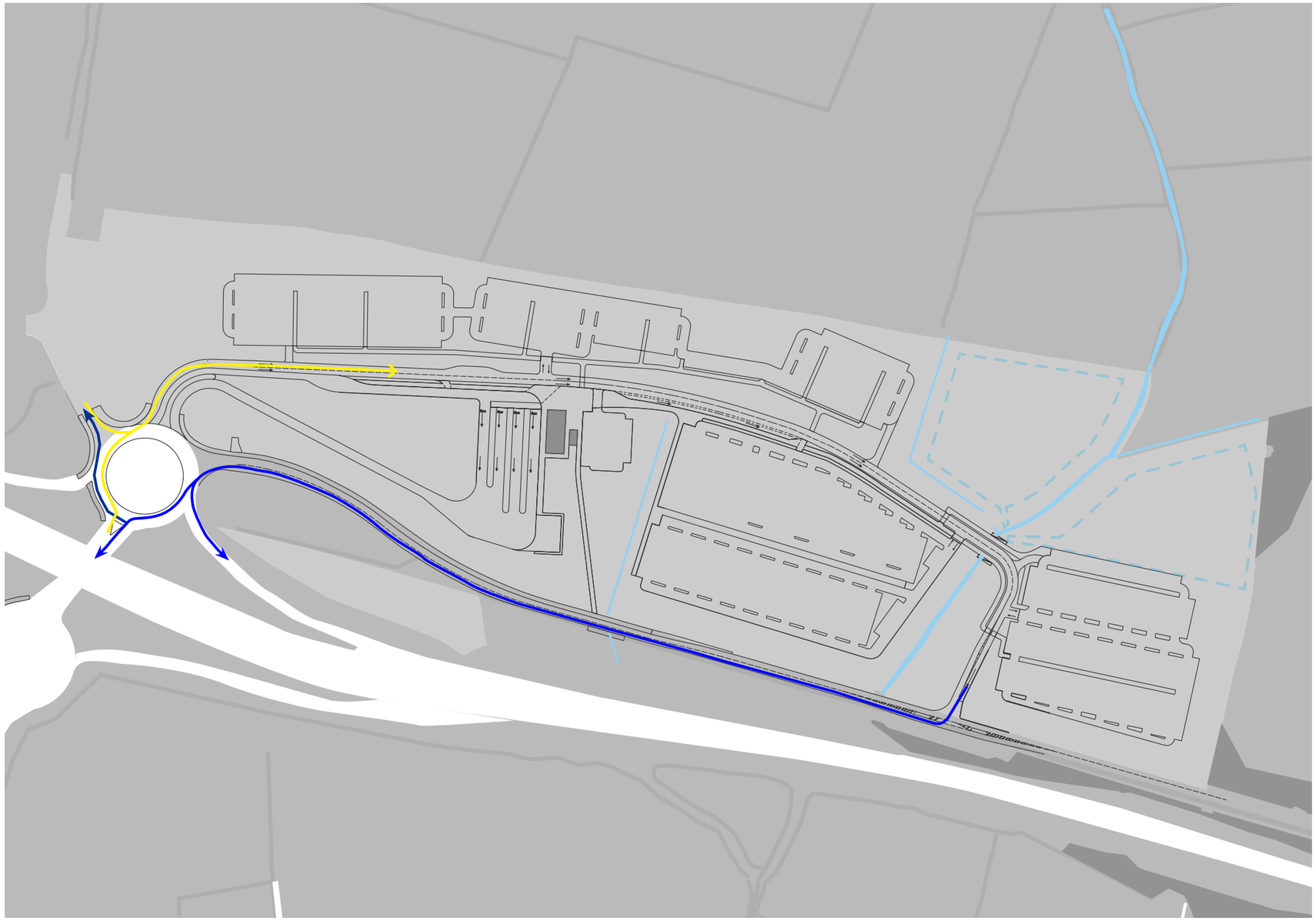


Figure 42 Highways proposal

9 POST-OPERATION

9.1 POST-OPERATION STRATEGY

Post-operation

9.1 POST-OPERATION STRATEGY

9.1.1. As explained in Volume 1, (Application Reference Number: 8.2.1), the Wylfa Newydd DCO Project will represent a significant investment and play a vital role in meeting the challenge of maintaining secure energy supplies in the UK. It will also deliver long-term employment growth, attracting and developing a skilled workforce equipped to support future projects and initiatives throughout North Wales.

9.1.2. It is important to identify how each component of the Wylfa Newydd DCO Project will be managed and used following their operational stage, whilst recognising that the DCO itself cannot give approval for post-operational uses. For the Associated Development sites, strategies are required to deliver a lasting legacy and/or restore the sites to an appropriate state.

9.1.3. The post-operation strategy for the Park and Ride would be to reinstate the site to its current agricultural use reinforcing the objectives set out in the Ynys Môn Landscape Strategy and in the LANDMAP landscape, character classifications.

9.1.4. The proposals would focus on re-establishing the site to its current agricultural use incorporating the key environmental assets that have been identified in figure 17 Key findings from habitat survey. The retained assets would be protected throughout the operation of the Park and Ride, and augmented with additional planting to close any gaps and improve biodiversity. The management of these assets during the operation of the facility would primarily focus on protecting the improved hedgerows and the areas of habitat created along the Nant Dalar Hir and tributary, including the installation of a box culvert crossing and bridge over the Nant Dalar Hir and tributary. The location of these crossings over the Nant Dalar Hir and tributary and their design have been developed to minimise impact on the terrestrial and aquatic ecology and their retention would be beneficial to the future agricultural use of the site.

9.1.5. The habitat survey and site analysis identified key lengths of species-rich hedgerow. The landscape proposals would protect and incorporate these locations during the operation of the facility, and would then build on them for the reinstatement of the site, following decommissioning. The reinstatement would restore the original field pattern and introduce additional lengths of species-rich native hedgerows to further strengthen this pattern and reflect closely the surrounding landscape character.

9.1.6. The proposed species and makeup of the reinstatement planting would build on the strategy developed for the temporary design, focusing on planting native tree and shrub species to strengthen the existing landscape character and to reinforce physical and visual links with the surrounding landscape.

9.1.7. All highways changes constructed to accommodate the operation of the site would be removed at decommissioning and the existing layout reinstated. An exception would be the cycle and footway improvements and the removal of the lay-by on the A5 Holyhead Road. Both these would be an improvement on the existing highways layout, and their retention has been welcomed by the IACC.

9.1.8. The flood attenuation ponds would be retained in the post-operation scheme.

9.1.9. Figure 43 shows the proposed restoration plan.

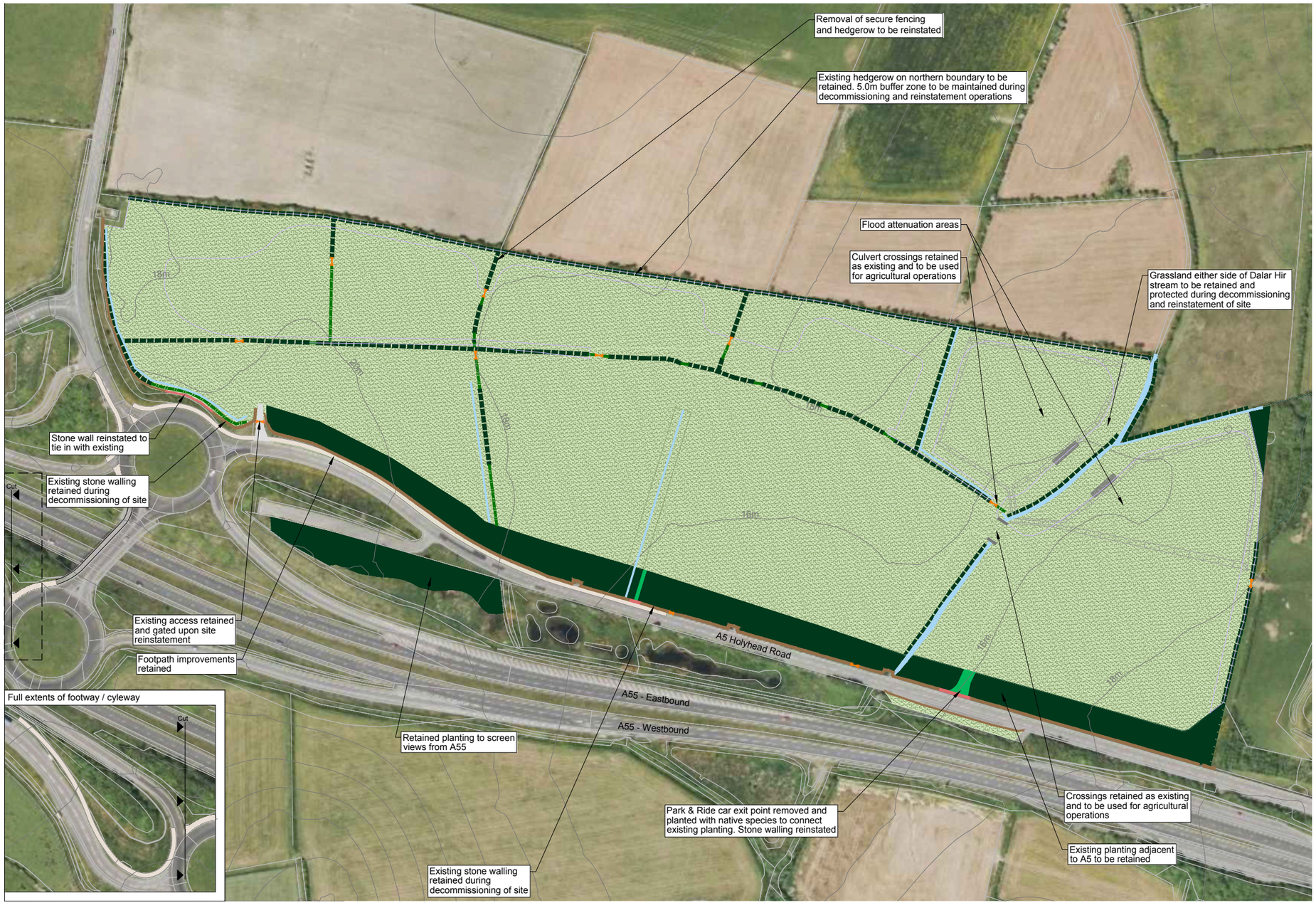


Figure 43 Restoration post-operation

A APPENDIX A

FACILITY ENVIRONMENTAL DESIGN OBJECTIVES

This appendix sets out the EDOs that were developed, with regard to the site constraints as set out in chapter 2 of this document, to inform the facility design and landscape principles. The third column provides an illustration of how each EDO could be met through the design process, as demonstrated in the design provided in Part B of this document.

REF.	OBJECTIVE	HOW IT MAY BE MET IN THE DESIGN PROPOSALS
EDO1	Design to avoid any impact on Llynnau y Fali – Valley Lakes SSSI.	Design has taken cognisance of the Nant Dalar Hir that runs through the site and feeds into Llynnau y Fali – Valley Lakes. A 15m buffer zone to the stream has been created with a single crossing. Drainage design considers existing flows and water quality of Nant Dalar Hir.
EDO2	Design to preserve heritage assets on-site (including field boundaries and boundary wall) where possible.	Design has taken cognisance of existing field boundaries and boundary wall. Existing hedges are to be retained where possible (localised openings required for vehicular access). Legacy use will be to restore existing hedge line and extend to the west where a building is currently located (building demolished prior to construction works). Existing boundary wall to be retained (localised opening required for pedestrian/vehicular access. Legacy use will be to restore the existing boundary wall where locally demolished.
EDO3	Design to incorporate landscaping and other measures to preserve landscape character of the area.	Design has taken cognisance of existing landscaping and preserves the landscape character of the area where possible. The environmentally significant features have been retained with buffer zones agreed (e.g. hedges, streams and wet ditches). Existing topography is being used as much as possible (noting the requirements that will need to be adhered to for roads and car parking).
EDO4	Design to consider, record, and incorporate wherever possible, measures aimed at maximising future efficient conversion to legacy land use (i.e. return to greenfield site) and to minimise waste.	Design has considered this. Current approach is to minimise the amount of cut and fill required. As a minimum the topsoil will need to be stripped (c. 300mm) and significant mounding (outside any buffer zones) re-profiled. The car parking areas are proposed to use a 'permeable paving' type product with minimal sub-base required and easy to remove and return to greenfield. Roads and bus drop-off area will require traditional road build-ups to cope with the traffic numbers and types. The new building will require foundations. These will be detailed following completion of geotechnical investigation.
EDO5	Design to minimise the generation of waste that needs to be disposed of off-site.	Use of 'permeable paving' type product for car parking should minimise waste generated (minimises excavations, off-site produced product). Building proposed to be of modular type construction which would minimise construction waste (to be progressed during Developed Design). Existing topography to be used where possible to minimise excavations.
EDO6	Design to ensure the layout includes a buffer zone of 15m either side of watercourses and 10m either side of wet ditches, within which no development will occur (aside from necessary works such as outfalls).	Design complies with this except where single crossing is required. In addition to 15m buffer either side of Nant Dalar Hir, a buffer 10m either side of the primary wet ditch feeding into this is also to be retained.
EDO7	Design to minimise area of site to be covered by hardstanding to reduce the impact on soil resources.	Design has considered this. Current approach is to minimise the amount of hardstanding. The car parking areas are proposed to use a 'permeable paving' type product which requires minimal sub-base and is easy to remove and return to greenfield. Roads and bus drop-off area will require traditional road build-ups to cope with the traffic numbers and types. The new building will require foundations and pavement surrounds.
EDO8	Design to retain, wherever possible, all water bodies identified on-site.	Design retains all water bodies on-site.
EDO9	Design to retain and protect, wherever possible, all hedgerows, trees and walls around site boundary. Layout needs to consider root protection zones.	Design has taken cognisance of existing field boundaries and boundary wall. Existing hedges are to be retained where possible (localised openings required for vehicular access). Reinstatement plan will be to restore existing hedge line and extend to the west where building(s) were located. Existing boundary wall to be retained (localised opening required for pedestrian/vehicular access). Reinstatement plan will be to restore the existing boundary wall where locally demolished. Buffer zones provided by environmental team assumed to allow for root protection zones.
EDO10	Where possible, design to retain and protect all hedgerows, trees and walls within site boundary. Layout needs to consider root protection zones.	Design has taken cognisance of existing field boundaries. Existing hedges are to be retained where possible (localised openings required for vehicular access). Reinstatement will be to restore existing hedge line and extend to the west where building(s) were located. There are no walls within site boundary. Buffer zones provided by environmental team assumed to allow for root protection zones.
EDO11	Design to ensure layout considers noise sources and receptors. This could include maximising distances between source and receptor, orientation of buildings and/or ensuring sufficient space to accommodate noise barriers or enclosing features generating noise sources.	Building located centrally within the site which maximises distance to noise receptors. Noise will be generated from vehicles entering the site (buses assumed to be diesel-hybrid).
EDO12	Design to use SuDS wherever possible. Seek to ensure sufficient space to further control storm water discharges from the site and ecological enable enhancement.	Design will use SuDS. Design approach is to minimise water runoff with permeable paving to car park areas with a granular sub-base to collect water and controlled discharge to existing watercourses.
EDO13	Design foundations to consider groundwater depth and quality.	Foundations will take account of this. Geotechnical intrusive investigation required to enable this to be designed further.
EDO14	Design to ensure lighting avoids, wherever possible, light-spill onto water bodies.	Design takes cognisance off all the water bodies on-site with 10m and 15m buffer zones agreed and adhered to. Crossing of water bodies (vehicular and/or pedestrian) is fitted with required lighting. High-level lighting strategy has been produced.
EDO15	Design to ensure lighting avoids, wherever possible, light-spill onto retained hedgerow and boundary habitats.	Design takes cognisance off all the hedgerows and boundary habitats on-site with buffer zones agreed and adhered to. Vehicular and pedestrian access through the hedges is required in some locations with lighting required. High-level lighting strategy has been produced,
EDO16	Design to re-use site soil as far as practicable, for example through the landscape areas, or identification of locations for re-use to minimise requirements for off-site disposal.	Re-use of site soil is difficult due to site constraints and maximisation of vehicle spaces. It is not thought to be practical to store topsoil for re-use due to the time periods involved (10 years) and the requirements associated with being able to re-use it.
EDO17	Design to incorporate hedgerow creation/tree planting with native species of local provenance; enhance retained hedgerows to create species-rich hedgerows.	The design includes creation of a hedge line extending to the west where a building is currently located (building demolished prior to construction works).
EDO18	Design to ensure seeding and appropriate management of any grassland creation with appropriate grassland species.	Design takes cognisance of this; refer to landscape strategy.

B APPENDIX B

MEETING THE DESIGN PRINCIPLES

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE DESIGN PROPOSALS	'GOOD DESIGN' THEME
Key design principles			
3.4.8	There will be provision of up to 1,900 parking spaces at the Park and Ride.	This is the basis of the proposed design, as expressed in section 1.6 Strategic design brief, and realised in figure 16 General arrangement plan.	Functionality
3.4.9	The vehicular entrance to the Park and Ride will be via a new access point off the existing northern A55-A5 junction roundabout. This will act as the entrance for all vehicles and as an exit for buses.	Proposed vehicle flows are indicated on figure 41 Vehicular movement strategy which account for existing traffic and users of the Park and Ride.	Functionality Mitigation
3.4.10	Design will incorporate, wherever possible, features which enable efficient conversion to legacy land use following operation.	The functional layout incorporates existing field patterns in the layout of car park zones, mindful of existing field boundaries and other ecological features.	Functionality Character Mitigation
3.4.11	Bus routes within the site will be designed as a one-way system in order to avoid the need for reversing buses. The layout will minimise conflicts between cars and buses.	Buses are proposed to transit the site safely one-way, without reversing (refer to figure 41).	Functionality
3.4.12	Designated pedestrian routes will be provided around the site.	These have been provided for safe pedestrian egress, and are indicated on figure 40 Accessibility strategy.	Functionality
3.4.13	Historic field boundaries will be retained and enhanced, where practicable, to maintain the landscape character.	The layout of the various parking areas has been mindful of the existing site conditions, and has been worked out to retain hedges and stone walls. Refer to figure 16 General arrangement plan and figure 21 Landscape masterplan.	Character Mitigation
3.4.14	New tree and shrub planting will be provided to enhance existing hedgerow, reinforce the field pattern within the site, integrate the site with the surrounding landscape and establish a boundary to the A55.	A planting scheme would be provided, mindful of the existing landscape character – refer to figure 22 Planting strategy and figure 23 Planting palette.	Character Appearance
3.4.15	As part of the restoration work, existing boundary hedgerows and stone walls that were removed for vehicular and pedestrian access will be restored to the original boundary alignment.	The site would be restored to its existing condition. Refer to section 9.1 and figure 43 Restoration post-operation.	Character Mitigation
3.4.16	A low energy design will generally be adopted, based on the hierarchy of minimising use, reducing waste, recycling and on-site generation.	Refer to sections 5.1, 5.2 and 5.3 for sustainability proposals. The building design and construction would embody sustainability principles. Waste and recycling would be appropriately managed.	Sustainability Mitigation
3.4.17	The size, shape and orientation of each parking area will be designed to avoid unnecessary watercourse crossings, thereby reducing effects on surface water.	The minimum number of crossings has been designed to minimise effects, whilst keeping security and emergency access possible. Existing landscape features have been used to drive the parking area layouts.	Sustainability Mitigation
3.4.18	In order to manage potential flood waters from both fluvial and pluvial sources further detailed manipulation of the topography of the Park and Ride will be progressed and redirection of flow paths will be used to manage these within the Park and Ride without increasing flood risk elsewhere.	Inclusion of flood water storage in ponds and within the proposed site drainage.	Sustainability Mitigation

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE DESIGN PROPOSALS	'GOOD DESIGN' THEME
3.4.19	Potential flood risk from storm water runoff will be mitigated by the drainage design developed for the Park and Ride site which includes the measures outlined below. • Permeable surfacing and landscaping will be incorporated across the car parking areas, reducing the increase in impermeable area. • Underground storm water attenuation/storage, sized to contain a 1% Annual Exceedance Probability (1 in 100 year) storm event, with a 20% allowance for climate change. • The majority of car parking will be on permeable surfacing with a granular sub-base which will form a below-ground storm water attenuation/storage facility. • Inclusion of flood attenuation areas.	Inclusion of flood water storage in ponds and within the proposed site drainage.	Sustainability Mitigation
Masterplanning principles			
3.4.20	Site security and a secure fenced boundary will be incorporated into the site design, to ensure the safe and secure operation of the facility, and to deter crime.	Refer to section 6.1 Natural surveillance and figure 39 Security strategy. For safety and security, all parking zones would be fenced with 1.8 Paladin-type fencing. CCTV and ANPR would be provided. The bus transport facility building would contain a dedicated security office, operating 24/7.	Functionality
3.4.21	Automatic access barriers will be provided at the entrance to the facility.	ANPR has been proposed, refer to figure 39 Security strategy.	Functionality
3.4.22	The site will be designed to allow construction and decommissioning in phases.	The nature of the design as parking zones would facilitate a phased delivery and decommissioning of parking spaces.	Functionality Adaptability
3.4.23	Highway access will be designed to avoid the potential for queueing outside the site. Exits onto the A5 will be signal controlled.	The layout incorporates a central spine road, which is off the public highway, where vehicles may queue before entering the facility, without disruptive effects to public highways. Refer to the detailed highway drawing accompanying this application for details of signal controls proposed for the A5 exit.	Functionality Mitigation
3.4.24	A new bus stop will be provided on the A5 at the Park and Ride to improve access to it from local towns and villages for construction workers.	This is indicated on the masterplan, to provide easy and safe access for those users travelling by public bus.	Functionality
Building design principles			
3.4.25	The architectural design will use simple building forms to recognise the function of the facility whilst still complementing its surroundings.	The bus transport facility building has been designed as a simple shape, optimised for the intended number of users. Refer to section 4.3 Architectural building design proposals.	Appearance
3.4.26	A visually recessive palette of colours will be used.	A palette of grey and stone tones has been proposed, per figure 36 Building materials palette, which would minimise visual effects associated with the building.	Appearance Character Mitigation
3.4.27	Off-site modular construction will be used where practicable.	This has been proposed (per section 5.2). A standard module size for the building is proposed.	Functionality Adaptability Sustainability
3.4.28	The colour and structure of the bus canopies will be chosen to reduce the visual intrusion of the canopies through the use of visually recessive colours and light structural frames	Lightweight structures with glazing are proposed to minimise visual intrusion, per paragraphs 4.3.19, 4.3.20 and figure 35 Bus shelter elevations and visualisation.	Functionality Appearance Mitigation
3.4.29	All offices and meeting rooms will include an external window.	All rooms contain external windows, to ensure quality indoor spaces, per figure 31 Bus transport facility building floor plan.	Functionality Sustainability

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE DESIGN PROPOSALS	'GOOD DESIGN' THEME
3.4.30	The bus transport facility building and waiting area will be centrally located within the site to increase the offset distance between noise sources (e.g. fixed plant and buses) and nearby sensitive receptors.	These facilities have been located at the centre of the site to mitigate noise effects. Refer to general arrangement plan.	Mitigation
3.4.31	The long-term appearance, including exterior finishes, of new or existing buildings, which will remain during the operational period of the Park and Ride, will be maintained until demolished.	This will be progressed during the next stages of design.	Appearance
Landscape design principles			
3.4.32	Historic field boundaries will be retained and enhanced where practicable, to maintain landscape character.	This has been achieved in the landscape proposals with the car park zoning, per figure 22 Planting strategy.	Appearance Character
3.4.33	To help reduce landscape and visual impacts over a shorter time period, advance planting will be implemented within the establishing planting belt parallel with the southern Park and Ride site boundary and the A5, as well as and in areas where existing hedgerows are being reinforced and enhanced.	This can be achieved as explained in the landscape proposals, section 4.2.	Appearance Character Mitigation
3.4.34	Landscape features will be retained with buffer zones where appropriate.	Buffer zones have been maintained in the design in accordance with the constraints figure, refer to figure 21 Landscape masterplan.	Character Mitigation
3.4.35	Landscape areas with be seeded with appropriate grassland species in order to help integrate into the surrounding landscape. Appropriate management will be undertaken to ensure successful establishment. Early phased programme of grass seeding and management will be implemented as areas are completed to improve integration with surrounding rural area and reduce landscape and visual impacts.	This has been achieved as explained in the landscape proposals, section 4.2. Management would be undertaken to ensure a successful landscape over the life of operation of the facility.	Appearance Character Mitigation Adaptability
3.4.36	New boundary tree and shrub screen planting will be established for the A55.	This has been achieved as explained above in 3.4.14.	Character Appearance Mitigation
3.4.37	The design will incorporate, species-rich hedgerow creation to soften appearance and strengthen the landscape pattern.	This has been achieved as indicated in the planting strategy between the parking zones (figure 22).	Character Appearance Mitigation
3.4.38	Existing topography will be used where possible to limit cut and fill and limit topographical changes.	This will be progressed during the next stages of design.	Character Appearance Mitigation
3.4.39	All watercourses identified on-site will be retained.	This has been achieved as indicated on the landscape masterplan (figure 21) which show that the existing runs of Nant Dalar Hir and its tributary are incorporated into the design.	Character Mitigation
3.4.40	Planting will be provided to reinforce and enhance existing hedgerows within the earliest appropriate planting season.	This has been achieved as explained above in 3.4.35.	Character Appearance Mitigation
3.4.41	External boundaries will be reinstated to pre-development condition or better. • Existing boundary hedgerows and stone walls, removed for Park and Ride access and egress, will be restored to the original boundary alignment. • Localised openings to internal hedgerows will be restored where previously removed for vehicular/pedestrian access. • New internal hedgerow, extending east to west, from the location of demolished Dalar Hir farmhouse to the London Road boundary, will restore the existing hedge line removed at construction.	The intention is to restore the site to its original condition, as explained in section 9 Post-operation and figure 43 Restoration post-operation.	Character Mitigation

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE DESIGN PROPOSALS	'GOOD DESIGN' THEME
3.4.42	Existing hedges and walls will be retained with localised openings created for pedestrian/vehicular access whenever practicable and appropriate.	This is indicated on the landscape masterplan.	Character Mitigation
3.4.43	A simple hard landscaping palette will be used to fulfil the functional requirements of the temporary development and create a clean landscape finish whilst being sufficiently robust to respond to the site's functional requirements.	A simple palette comprising asphalt reinforced concrete for bus transfer areas, asphalt surfacing for roads and permeable paving is proposed. This would minimise visual intrusion.	Functionality Character Mitigation
3.4.44	Aggregate laid down for car parking will be underlain by an impermeable membrane that will route drainage to oil separators prior to discharge to surface water. In order to manage runoff throughout the lifetime of the Park and Ride, the drainage system will be implemented from as early as practicable in construction.	Refer to surface water proposals in section 5.4.	Mitigation Sustainability
3.4.45	The surface water drainage design will include measures to prevent pollution of local watercourses and include measures to control the peak runoff rate from the site.	Permeable paving, with oil interceptors, is proposed for parking areas for surface water runoff management.	Mitigation Sustainability
3.4.46	CCTV will be provided at strategic locations within the site.	To create a safe and secure site, this has been proposed for regions around the bus transfer area, entrances and exits, per figure 39 Security strategy.	Functionality
3.4.47	The design of the Park and Ride will include footway improvements as well as continuation of footways which will also run along the A5 to a pedestrian access to the Park and Ride.	Refer to figure 40 Accessibility strategy. The proposals include clear pedestrian routes away from the site and south of the A55, enhancing the quality of the area. Provision for bus stops on the A5 near a pedestrian walkway to the bus transport facility building is made.	Functionality Character
Sustainability principles			
3.4.48	A clear span bridge will be provided over the single crossing across the Nant Dalar Hir during operation of the site. This clear span bridge will be designed according to good practice design guidelines and the bridge deck will be sited above a design flood level.	Due to the relatively short span required, a clear span bridge is feasible and is proposed. A 'Bailey' type truss bridge would likely be proposed and worked into the detailed design.	Functionality Mitigation Sustainability
3.4.49	Lighting design will limit light spill by controlling operational lighting, through the use of control measures, e.g. movement sensors, dimming and deactivating lighting in unused car parking zones.	External lighting is constrained to the parking areas, road and bus transfer area, utilising down lighters to minimise visual intrusion. See section 4.5 and figure 37 Lighting strategy.	Functionality Mitigation Sustainability
3.4.50	Lighting during the operational stage of the Park and Ride will ensure that light-spill onto hedges and watercourses are avoided wherever practicable.	Refer to 3.4.49 above.	Functionality Mitigation Sustainability
3.4.51	The facility will include water-efficient fittings which help reduce water consumption.	Low flush toilets would be specified.	Functionality Sustainability
3.4.52	The drainage design for the access road, bus parking and pick-up area will incorporate oil separators on drainage from the impermeable areas. The oil separators will be located on the inflow to the attenuation tank.	This is proposed for the management of surface water as described in section 5.4 Water.	Functionality Mitigation Sustainability

C APPENDIX C

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WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Design and Access Statement Volume 3

Appendix 1-4 Logistics Centre

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PART A: CONTEXT AND PRINCIPLES

1 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT
1.2 GENERAL CONTEXT
1.3 STRUCTURE OF THIS DOCUMENT
1.4 SITE SELECTION
1.5 STRATEGIC DESIGN BRIEF
1.6 DESCRIPTION OF THE PROPOSED DEVELOPMENT

Introduction

1.1 PURPOSE OF THE DOCUMENT

1.1.1. This Design and Access Statement (DAS) sets out the process of design evolution for the proposed Logistics Centre at Parc Cybi.

1.1.2. As noted in Volume 1 (Application Reference Number: 8.2.1), Horizon has submitted detailed design drawings for approval and on an illustrative basis as part of its DCO Application.

1.1.3. Detailed design drawings have been submitted for the Logistics Centre for approval. Once approved, Horizon must undertake construction of the Logistics Centre in accordance with the approved designs. However, in order to preserve flexibility, Horizon may seek approval to submit revised plans provided such plans are in accordance with the design principles in this document and the DCO parameters tables.

1.1.4. The design explained in Part B of this document is an illustrative example of how the scheme could be delivered in accordance with the parameters and the design principles.

1.1.5. This document forms part of Volume 3 of the DAS (Application Reference Number: 8.2.3), which is structured as follows:

- Volume 1 (Application Reference Number: 8.2.1) provides an overview of the entire Wylfa Newydd DCO Project including the Associated Development;
- Volume 2 (Application Reference Number: 8.2.2) relates to the Power Station Site; and
- Volume 3 (Application Reference Number: 8.2.3) relates to the Off-Site Power Station Facilities and Associated Development, including the Site Campus, Logistics Centre, Park and Ride facility and A5025 Off-line Highway Improvements.

1.1.6. The DAS forms part of a suite of documents which support the Development Consent Order (DCO) application for the Wylfa Newydd DCO Project, as set out in Volume 1 of the DAS (Application Reference Number: 8.2.1).

1.2 GENERAL CONTEXT

1.2.1. The proposed Logistics Centre is an integral component of Horizon Nuclear Power Wylfa Ltd.'s (Horizon) Integrated Traffic and Transport Strategy (ITTS, Application Reference Number: 6.3.20), serving as a temporary secure facility to manage deliveries to the Wylfa Newydd Development Area by road during the Main Construction stage of the development, thereby reducing impact on the local road network.

1.2.2. The Logistics Centre would be a temporary secure facility from which deliveries to the Wylfa Newydd Development Area would be managed to reduce traffic and impacts to the local road network. Vehicles could also be despatched in a controlled manner to relieve traffic congestion at the staging area at the Wylfa Newydd Development Area.

1.2.3. It is Horizon's aspiration that robust logistics management would ensure that convoys of delivery vehicles travelling along the A5025 can be avoided and queues of vehicles entering the Wylfa Newydd Development Area are avoided.

1.2.4. The Parc Cybi site is near the A55, outside of Holyhead town, near some existing industrial and retail developments. The site is bounded by the A55 to the north, an existing B-road to the south and open countryside to the east and west. The site is opposite the Road King facility built to manage port traffic.

1.2.5. The proposed design incorporates secure parking for up to 100 heavy goods vehicles (HGVs) along with vehicle search and screening facilities and the requisite amenities for on-site staff and drivers.

1.2.6. The Logistics Centre would be operational for approximately 10 years, only for the duration of the construction of the Power Station. At the end of the construction period, the Logistics Centre would be made available for an alternative use. If further planning permission is required for any external changes then this would be applied for at the time.

1.2.7. Figure 1 shows the location of the proposed Logistics Centre, in the context of the Wylfa Newydd DCO Project sites. Figure 2 gives a visual representation of the Worker Transport Strategy.

1.2.8. For details of the site selection process undertaken for the Logistics Centre, refer to the Site Selection Report, Volume 6 – Logistics Centre (Application Reference Number: 8.24.6). For further detail relating to alternatives and design evolution, refer to the Environmental Statement, Volume H - Logistics Centre H2 - Alternatives and design evolution (Application Reference Number: 6.8.2).

1.3 STRUCTURE OF THIS DOCUMENT

1.3.1. This document is set out in two parts. Part A defines the 'design principles' with which the design of the Logistics Centre has to accord (based on an appraisal of the site context and design brief). Part B then provides an analysis of how the detailed design has been developed in accordance with these principles and parameters (specifically addressing the key elements of good design identified in EN-1, EN-6 and TAN12).

1.3.2. Part A: Context and principles:

- Chapter 1 introduces the Logistics Centre, sets out the design brief, operational and functional requirements, and describes how this document relates to Volumes 1, 2 and 3 of the DAS (Application Reference Number: 8.2.1 to 8.2.3).
- Chapter 2 summarises the existing physical context of the site. The chapter also reviews design and access related feedback from consultation events and explains how the proposed development has evolved in response.
- Chapter 3 defines the 'design principles' that the development will adhere to (having regard to the context set in chapter 2).

1.3.3. Part B: Design proposals:

- Chapter 4 explains how the detailed design proposed to be approved through the DCO is in accordance with the design principles.
- Chapter 5 explains how the proposed development could promote high levels of environmental sustainability.
- Chapter 6 sets out how the proposed development could demonstrate safety and security.
- Chapter 7 provides details relating to accessibility of the site including proposed details of inclusive access measures.
- Chapter 8 details proposed movement for all users, including car parking, servicing and highways.
- Chapter 9 outlines the post-operation strategy for the site.

1.3.4. Appendix A sets out the facility environmental design objectives and detailed commentary on how they may be met.

1.3.5. Appendix B sets out how the design principles may be met in the design proposals.

1.3.6. Appendix C sets out the documents referred to in this document.

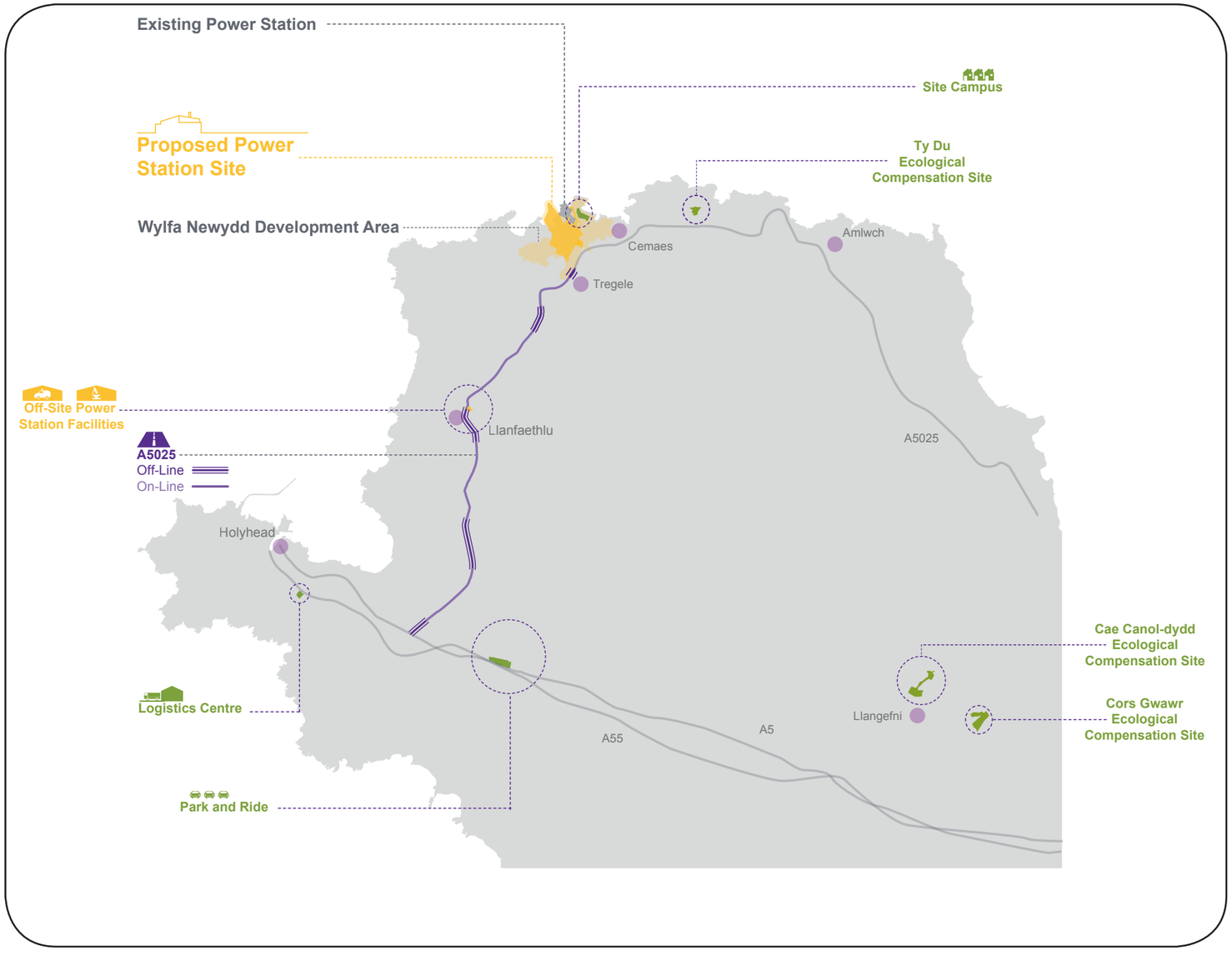


Figure 1 Logistics Centre within the context of the Wylfa Newydd DCO Project sites

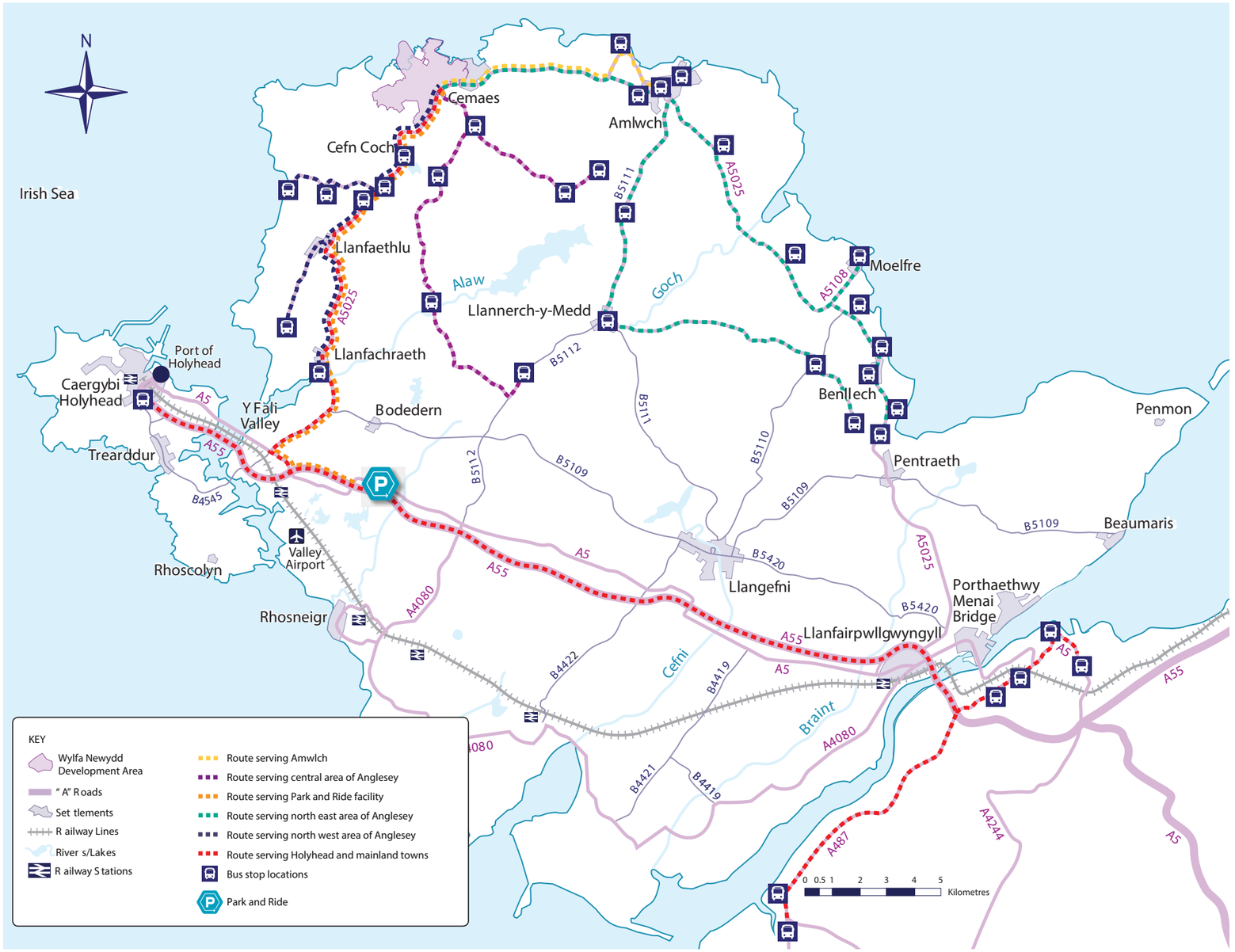


Figure 2 Worker transport strategy

1.4 SITE SELECTION

1.4.1. The Site Selection Report - Volume 6 – Logistics Centre (Application Reference Number: 8.24.6) explains the site screening and selection process for the Logistics Centre. This involved a four stage methodology, including the identification of a 'long list' of potential sites (using data sources provided by the Anglesey and Gwynedd Joint Planning Policy Unit), with broad criteria then applied to consider the suitability of the sites, such as size, environmental constraints and proximity to the local road network. These sites were then assessed in more detail using finer criteria. In particular, the sites have been scrutinised according to the following:

- the specific operational prerequisites for that Associated Development, in relation to locational and size requirements beyond the stage one criteria; and
- whether the existing or proposed land use of the site would be consistent with planning policy.

1.4.2. As a result of the site screening process, Horizon considers that Parc Cybi is the preferred site for the location of a Logistics Centre. It is allocated in the Joint Local Development Plan (JLDP) for employment purposes (B1, B2 and B8), and therefore is preferable in planning terms.

1.4.3. Parc Cybi fully meets Horizon's functional requirements, is easily accessible from the A55 and is allocated for employment development so draws clear support from planning policy. The site lies within the Anglesey Area of Outstanding Natural Beauty (AONB), but exceptional circumstances have previously been found to exist to justify employment development here both in previously approved planning applications and through the allocation of the site through the JLDP.

1.5 STRATEGIC DESIGN BRIEF

1.5.1. The facility is intended to ensure that deliveries to the Wylfa Newydd Development Area are appropriately managed to minimise impacts on the local road network, in particular the A5025. It would be used to control and relieve the timing of traffic to the Wylfa Newydd Development Area as described in the Transport Assessment (Environmental Statement Volume C - Project wide effects C2 - Traffic and Transport, Application Reference Number: 6.3.2) submitted in support of this application. It is intended to be used during the Main Construction phase.

1.5.2. Horizon's overarching goals and objectives for the Wylfa Newydd DCO Project are set out in Volume 1 of the DAS (Application Reference Number: 8.2.1).

1.5.3. For the Associated Development sites, Horizon's proposals should, having regard to the temporary nature of development:

- provide the necessary facilities to ensure the delivery of the Power Station that meets the urgent need for new nuclear power as early as possible in a safe and efficient manner;
- minimise visual impact as far as possible;
- respect local communities, and minimise impact on them as far as possible, particularly those very close to the Associated Development sites; and
- help to create a positive legacy for Anglesey, thinking about each significant investment and how it can create a positive legacy for the area, recognising that this will not always involve retaining the buildings on the Associated Development sites.

1.5.4. This chapter sets out the specific requirements in relation to the Logistics Centre based on the above.

1.5.5. The design would include an office/welfare building, security and information kiosks, inspection bays, parking zones for HGVs and staff vehicles and security features. The facility would be designed for a normal flow of vehicles, with a capability to process a defined maximum amount of vehicles per hour, primarily to clear any backlog in the event of a stoppage at the Power Station, as described in the Transport Assessment (Application Reference Number: 6.3.2). The external layout would be designed to support a clear and swift flow of vehicles through the site, cognisant of relevant design guides and best practice. The facility would be operational for approximately 10 years.

SITE BRIEF

1.5.6. The design has been developed in accordance with Horizon's initial requirements and applicable changes during the course of the Concept Design phase. The following requirements have informed the approach to the design.

1.5.7. The site is located in the north-west of the wider Parc Cybi employment area. The site is bounded by the A55 to the north, the Parc Cybi service road to the south, a substation to the west and open countryside to the east.

1.5.8. The Logistics Centre would be used during the construction phase of the Power Station to control the flow of traffic along the A5025.

1.5.9. Please refer additionally to the overall objectives in Volume 1 of the DAS (Application Reference Number: 8.2.1).

1.5.10. The Parc Cybi site offers the opportunity to provide secure space for the anticipated throughput of vehicles on a site that has evidence of prior planning permission for employment purposes, and benefits from an employment allocation in the JLDP.

1.5.11. In 2010, Conygar Investment Company Plc obtained full planning permission (reference: 19/C842J/ECON) for the proposed development of distribution and warehousing space and to support transport operators at the Port of Holyhead. Land at the north-eastern extent of the Parc Cybi site was granted outline planning permission (reference: 19C842A/EIA) in 2005 for an industrial development and some environmental investigations had been undertaken to support that application, in addition to work undertaken for the Parc Cybi site as a whole. The access junction has been fully implemented in accordance with the planning consent.

1.6 DESCRIPTION OF THE PROPOSED DEVELOPMENT

1.6.1. The proposed development consists of:

- an office/welfare building providing:
  - welfare and catering facilities for on-site staff and drivers; and
  - office space;
- a security kiosk (at the entrance/exit);
- a driver instruction point prior to the vehicle inspection area to direct vehicles;
- vehicle search and screening facilities, capable of inspecting 100% of vehicles utilising the facility;
- parking bays for HGVs, medium goods vehicles and light goods vehicles; and
- staff parking bays (including one disabled space).

OPERATION AND STAFFING

1.6.2. HGV deliveries would be allocated a time slot and associated delivery period when they should arrive at the Logistics Centre. The sequence of activities during this delivery period is as follows.

- Vehicle arrives at the site and queues up on the access road within the footprint but before the security kiosk (design would cater for up to eight HGVs to queue at any time, to prevent any queuing on Parc Cybi Road).
- Delivery documentation is checked and authorised, vehicle drives through security and is directed to scanner or inspection bay (less than 15 minutes typical; a thorough search would take longer).
- Vehicle is accepted, vehicle is tagged and driver is issued delivery documents, a departure time, and is allocated a holding bay number, holding bay waiting time and, if required, directed to the inspection area.
- At the allotted time, the vehicle leaves the Logistics Centre and drives directly to the Wylfa Newydd Development Area.

1.6.3. Vehicle movements from the Logistics Centre to the Wylfa Newydd Development Area would be controlled in order to prevent vehicles leaving in convoy, and to avoid sensitive times of the day (such as peak work rush hour and school run). Once released, these vehicles would travel along the A55 to Junction 3 and along the A5025.

1.6.4. A one-way journey driving from Parc Cybi to the Wylfa Newydd Development Area would take approximately 30 minutes.

1.6.5. A kiosk is to be provided at the entrance and exit barriers to allow the manual operation of these barriers and to assist with the turnaround process if necessary.

1.6.6. Logistics management would involve the following activities, including but not limited to:

- provision of a core team of staff to include security, inspectors and potentially logistics controllers;
- provision of full-time plant (owned or hired) to remain in permanent operational readiness if vehicles need to be inspected, to include general sundries like pallets, tarpaulin and rope; and
- day-to-day management of traffic movements, via a real-time management system.

FUNCTIONAL AND OPERATIONAL REQUIREMENTS

1.6.11. The layout of the Logistics Centre has been developed to meet a series of requirements, driven by the site constraints and the functional constraints of the numbers of vehicles and transport user flows, from the transport brief.

1.6.12. The key functional and operational requirements are listed in table 1. This shows information for the operational period.

Table 1 Operational information

ITEM	INFORMATION	
Operational programme	Required during Main Construction.	
Size of operational workforce	Up to 14 staff, comprising: • administration: up to two staff; • security staff: up to eight on each shift; • logistics management: up to two staff; and Office/welfare building: assume two staff on day shift to cover cleaning.	
Shift patterns	Day shift Staggered start: 07:00, 07:30 and 08:00 Staggered end: 17:30, 18:00 and 18:30 10 ½ hour day	Night shift Staggered start: 16:30, 17:00 and 17:30 Staggered end: 03:00, 03:30 and 04:00 10 ½ hour day
	Shift patterns stated are those for the Wylfa Newydd Development Area. It is assumed the Logistics Centre would be operational 24/7 and as such operations would suit the stated shift patterns.	
Operational vehicles	None	
Traffic modelling	Refer to workforce and delivery details in the Traffic Assessment (Application Reference Number: 6.3.2).	
Operational traffic data for opening year	The average number of vehicles arriving and departing per hour would be 40. This includes all vehicles travelling to the Logistics Centre and then to the Wylfa Newydd Development Area. The vehicles would consist of Light Goods Vehicles (LGV)/Medium Goods Vehicles (MGV)/Heavy Goods Vehicles (HGV).	
Goods deliveries	General deliveries to facility for consumables, etc. assumed to be one per day.	
Access	Via new entrance to south. Adequate access road within the site, off the public road, to allow for up to eight HGVs to queue up within the facility and not cause congestion on the public road.	
Parking	100 HGV spaces. 13 staff vehicle parking spaces including one disabled space.	

2 CONTEXTUAL ASSESSMENT

2.1 PHYSICAL ASSESSMENT
2.2 POLICY ASSESSMENT

Contextual assessment

2.1 PHYSICAL ASSESSMENT

SITE LOCATION

2.1.1. The proposed site is close to the A55, outside Holyhead town, near to some existing industrial and retail developments. The site is bounded by the A55 to the north, an existing B-road to the south and open countryside to the east and west. The overall Parc Cybi site extends to approximately 56.5 hectares. The proposed Logistic Centre's footprint is approximately 3.7 hectares. This site is approximately square on a north-west to south-east orientation.

2.1.2. The site as shown in figure 3 includes the areas proposed for the Logistics Centre.

2.1.3. The site falls significantly from the entrance at the south-east to the north-west by approximately 10m.

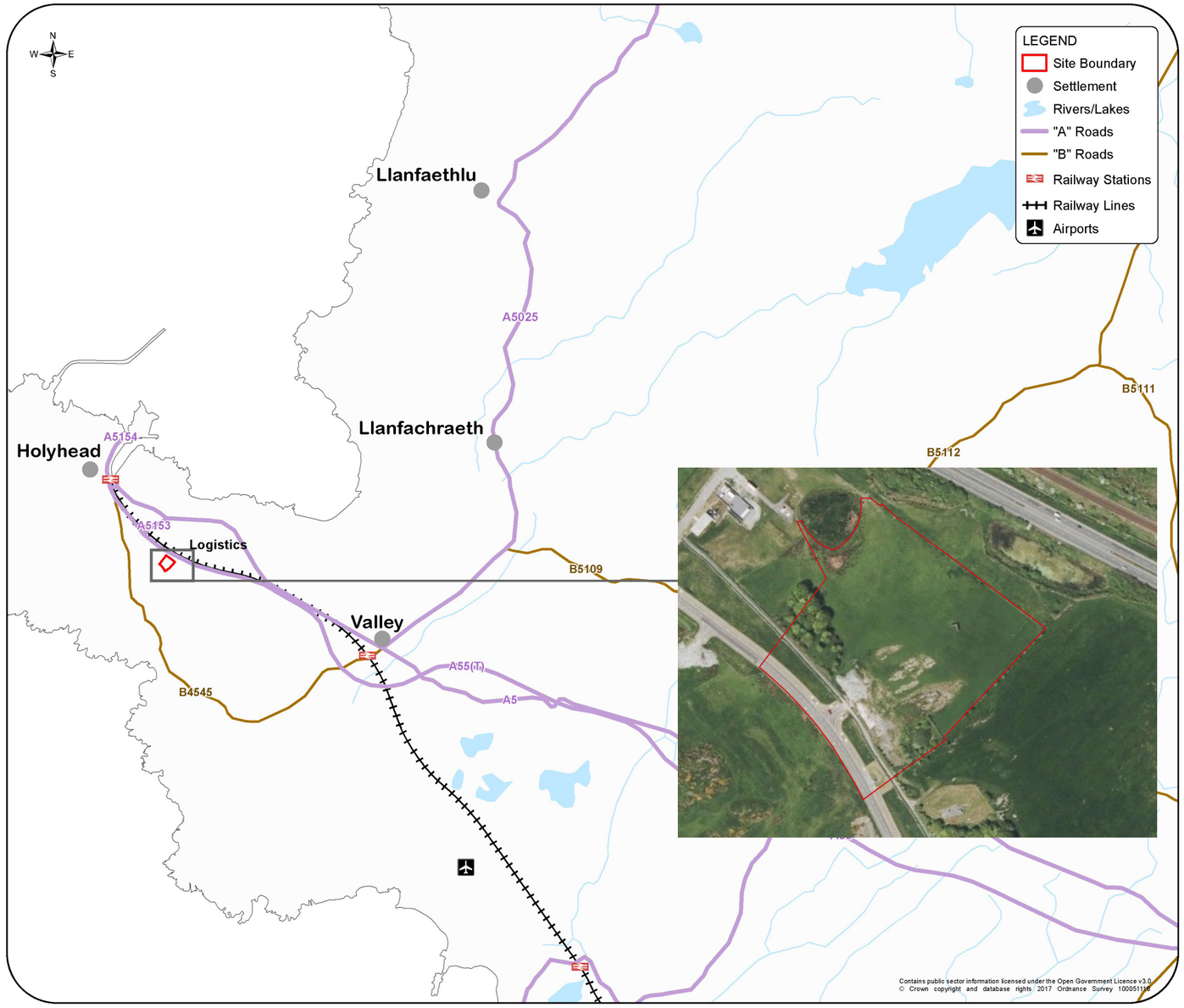


Figure 3 Site location

EXISTING LAND USE

2.1.4. The site sits within the Parc Cybi development area and would be absorbed into the eventual development of the business park. It sits between the Parc Cybi access road and the A55 to the north and is currently an open grassed area with wide tracts of disturbed ground. It is currently an open grassland area sloping down towards the A55. There are few features of interest visible within the site, with exception of a tree group on the south-western corner and an exposed rock outcrop towards the southern eastern corner.

2.1.5. The key requirement outside the site boundary, but extending influence on the development of the site, is to maintain a line of sight between the Ty Mawr Standing Stone and the Trefignath Burial Chamber. The line of visibility has been shown on the constraints figure (figure 13).

2.1.6. The northern and eastern boundaries are defined by the remnants of a hedgerow and fence line; the southern boundary by a stone wall adjacent to the Lon Trefignath Cycle Path, running from Kingsland to Trearddur.

2.1.7. Figure 4 shows an aerial image of the current site.

HERITAGE

2.1.8. The majority of the site has remained undeveloped agricultural land, with the now removed 'Tre-Fignarth farmstead' the only developed portion of the site. The land immediately surrounding the site has remained largely undeveloped agricultural land; the most significant development being construction of the railway and A55 immediately to the north of the site. The site lies between the Ty Mawr Standing Stone and the Trefignath Burial Chamber.

TOPOGRAPHY

2.1.9. The site sits to the north of the Parc Cybi access road behind a wide verge and the cycle and footway. The site is level adjacent to the access road with a road outcrop to the southern end of this frontage. The site then falls towards the northern boundary and the A55 embankment.

GEOLOGY

2.1.10. The site is underlain by bedrock at shallow depth comprising mica schist and psammite from the late Pre-Cambrian low grade metamorphic New Harbour Group, which are bisected by a northwest-southeast striking fault. Bedrock is overlain by a Devensian aged cohesive glacial till and granular glaciofluvial deposits.

SOILS

2.1.11. The majority of the site is glacial till described as laterally and vertically heterogeneous brown and grey slightly clayey medium to course sand and boulders. Glaciofluvial deposits are also present in part of the site. The deposits overlay bedrock. The site has some made ground in the south and south-west area associated with the Parc Cybi access road and the Trefignath farmstead.

SURFACE/GROUND WATER

2.1.12. The superficial deposits underlying the majority of both the site and surrounding area are classified as unproductive strata. These are drift deposits with low permeability that have negligible significance for water supply or river base flow. The glaciofluvial deposits in the central and south-western parts of the site are classed as secondary aquifers, which contribute to local river base flow. The bedrock has been classified as a Secondary aquifer. There are two ponds located to the north and north-west of the site boundary. The pond to the north serves the A55. The pond to the north-west has been designed to serve the Parc Cybi development including this site.

FLOOD RISK

2.1.13. The site is not within an area of flood risk.

Order Limits

Figure 4 Aerial image

Figure 5 Landscape designations

Anglesey AONB

No designation

LANDSCAPE DESIGNATIONS

2.1.14. The site is situated in the Anglesey AONB as identified by the JLDP. The Review of Special Landscape Areas in Gwynedd and Anglesey (Land Use Consultants, 2012) identified six proposed Special Landscape Areas (SLAs) on Anglesey intended to replace the previous designation which covered the majority of the island. Following the adoption of the JLDP these six SLA designations were brought into force, superseding the previous island-wide SLA. The site of the proposed Logistics Centre does not lie within any of these six SLAs.

2.1.15. Figure 5 depicts the applicable landscape designation.

Order Limits (all figs)

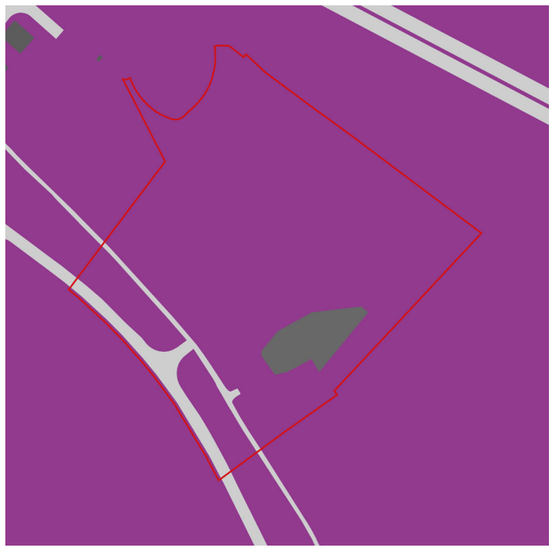


Figure 6 Landscape character

LCA1 Holy Island

LANDSCAPE CHARACTER

2.1.16. A review of published landscape character information has been carried out in order to gain an understanding of the nature and value of the landscape character of the area, including the landscape character of the Anglesey AONB, the Anglesey-wide SLA.

2.1.17. The site at Parc Cybi sits within Landscape Character Area LCA1 Holy Island as defined in the Anglesey Landscape Strategy Update 2011 (IACC, 2011): relatively low lying with a number of craggy outcrops and to the south around Rhoscolyn is an area of more undulating terrain, illustrated in figure 6. The LCA represents a landscape character that is quite distinctive – rural, wild, exposed, coastal – with the main detractor being aircraft noise from the adjacent RAF Valley airfield.

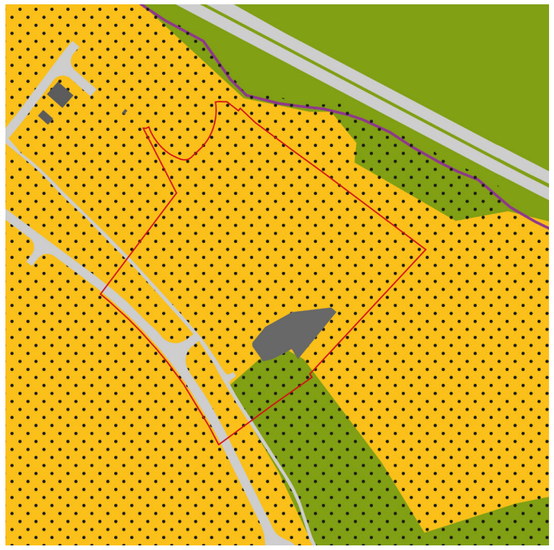


Figure 7 LANDMAP classifications

LANDMAP

2.1.18. The site is identified within the LANDMAP Historic Landscape Area "Wylfa". Figure 7 depicts the LANDMAP areas applicable to the site.

West of Holyhead: Significant wooded habitats within an improved grassland dominated habitat. Large percentage of area designated as AONB.

Historic Landscape – Penrhos: A landscape of local value with evidence of Neolithic, Bronze Age, Iron Age, Romano-British and medieval activity.

Landscape Habitats – Farmland - Trearddur to Holyhead: Area of improved grassland farmland that is distinctly less semi-natural than areas in the east and west. Low Value.

Visual and Sensory – Holy Island: Low-lying area with a pattern of low craggy ridges and marshy bottoms.

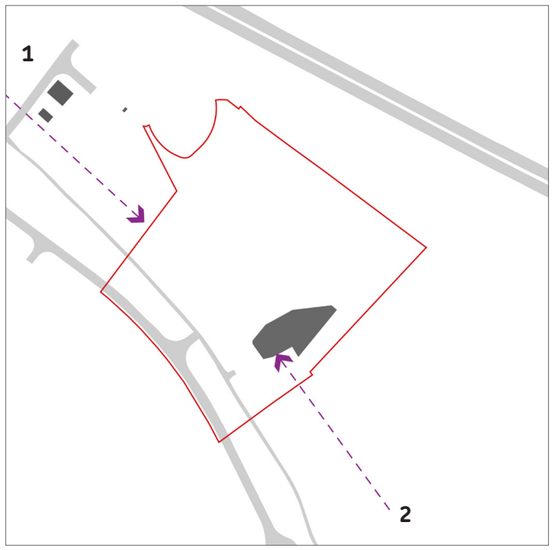


Figure 8 Key views

KEY VIEWS

2.1.19. The site sits in a predominately open landscape, with the views from the Ty Mawr Standing Stone and the Trefignath Burial Chamber being the key factors in the development of the site.

2.1.20. Directions of the key views are shown in figure 8, with images of the views shown in figure 9.

1. View from the Ty Mawr Standing Stone
2. View from the Trefignath Burial Chamber

View 1: from the Ty Mawr Standing Stone

View 2: from the Trefignath Burial Chamber

Figure 9 Panorama photographs

Figure 10 Landscape features

LANDSCAPE FEATURES

2.1.21. The site is open, with the main features lying outside of the site boundaries, namely the Ty Mawr Standing Stone to the west, the Trefignath Burial Chamber to the east and the A55 to the north. A small area of mixed woodland straddles the south-western corner and a large rock outcrop lies near the south-eastern corner. Running through the southern section of the site is the Lon Trefignath Cycle Path, flanked with stone walling with the Parc Cybi access road beyond, defining the southern boundary.

2.1.22. Figure 10 depicts applicable landscape features.

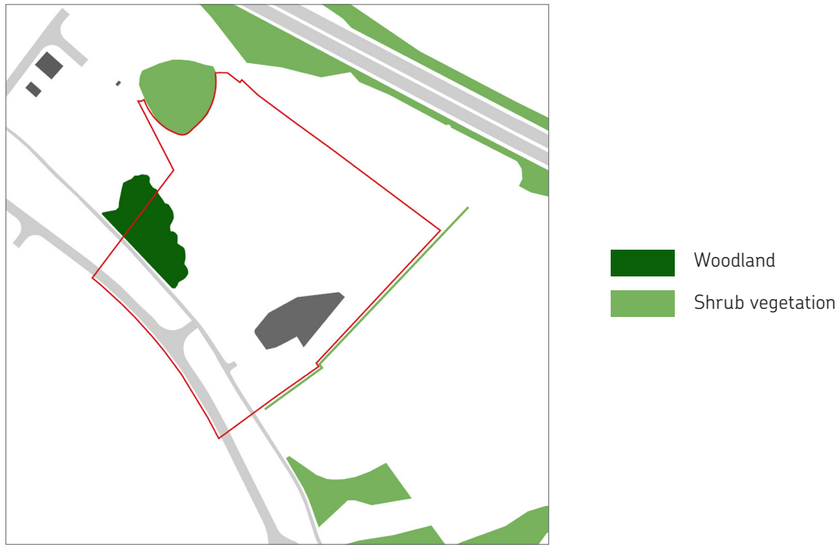


Figure 11 Woodland and vegetation

WOODLAND AND VEGETATION

2.1.23. Habitat and protected species surveys have been carried out for the site. The surveys have identified that the woodland and hedgerow habitat have the potential to provide greater biodiversity in and around the site.

2.1.24. There is limited vegetation on the site, a wooded area straddling the south-western corner and a hedge and fence on the eastern boundary.

2.1.25. Figure 11 depicts current woodland and vegetation present.

SITE HISTORY

2.1.26. The planning history for the proposed Logistics Centre site demonstrates that it has previously been supported as a suitable location for business and industrial uses. An outline planning consent for the wider Parc Cybi site was granted in March 2005 for the development of a mixed-use scheme, comprising employment uses, a hotel, office uses, leisure uses and industrial units (reference:19C842A/EIA).

2.1.27. In December 2009, a full planning application for the construction and operation of an office complex and industrial / warehousing facilities on two separate plots at Parc Cybi was submitted to the Isle of Anglesey County Council (IACC). This included the preferred site for the Logistics Centre. Consent was granted in 2010 on the site of the proposed Logistics Centre for the construction of four units in warehouse and office use (reference: 19/C842J/ECON).

2.1.28. An access road to the Logistics Centre site has already been constructed and one of the plots associated with the above 2005 planning permission (reference: 19C842A/EIA) has been built out (Road King, which is to the west of the proposed Logistics Centre site).

SURROUNDING AREA

2.1.29. The site is bounded by the A55 to the north, an existing B-road to the south and open countryside to the east and west. The Logistic Centre site is located within a wider employment area on the edge of Holyhead. The area is being supported by the Welsh Government as an Enterprise Zone and has been set aside for strategic employment land by the IACC.

2.1.30. The existing residential area of Kingsland is located approximately 230m to the west of the preferred Logistics Centre site and the residential area of Trearddur Bay is located approximately 700m to the south.

2.1.31. Images of the surrounding area are shown in figure 12.

Figure 12 Surrounding area

ENVIRONMENTAL DESIGN OBJECTIVES

2.1.32. As a result of environmental assessment work and associated surveys, a list of environmental design objectives (EDOs) have been developed for the Logistics Centre which have informed the design principles. Appendix A lists the EDOs and provides detailed commentary on how the EDOs could be met through the design process, by the proposed design, during the construction, operation and decommissioning phases as applicable. The EDOs have been informed by the environmental constraints outlined below.

ENVIRONMENTAL CONSTRAINTS

2.1.33. There are a number of environmental constraints (figure 13) on the site which are relevant to the development of a masterplan for the Logistics Centre. These constraints include:

- A significant fall in the site south-east to north-west by approximately 10m. The design should consider the re-use of excavated rock as fill material.
- Existing rock outcrop which should be retained as far as practicable.
- Maintaining the view between Neolithic burial chamber and standing stones across the southern corner of the site.
- Potentially sensitive archaeological areas along the site frontage which should be avoided in the development of the buildings and hardstanding, as far as practicable.
- Existing cycle way to the southern edge of the site which should be retained and integrated into the development.

2.1.34. The most important constraint has been to maintain a line of site between the Ty Mawr Standing Stone and the Trefignath Burial Chamber.

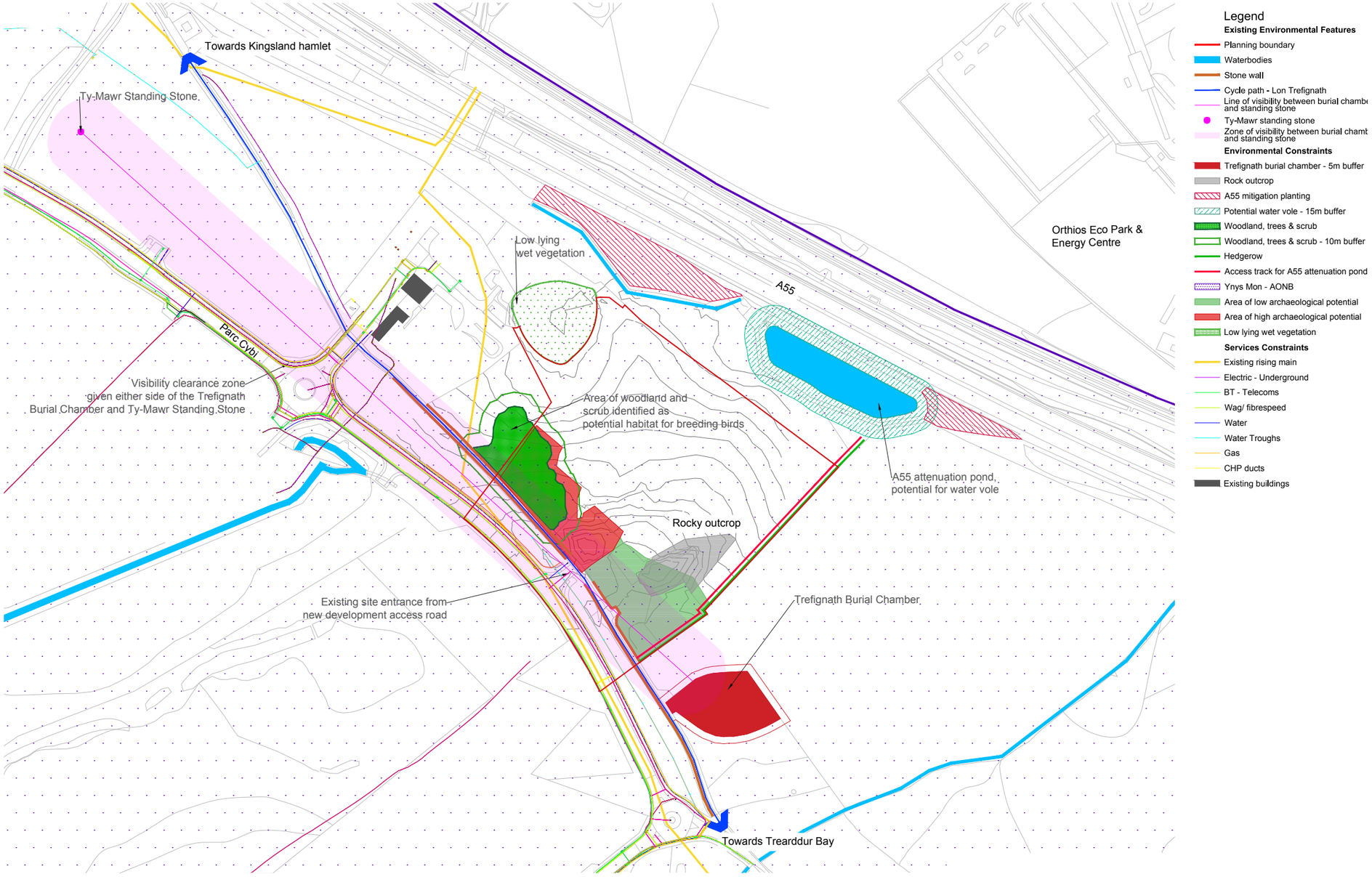


Figure 13 Environmental constraints

2.2 POLICY ASSESSMENT

2.2.1. Planning policy provides a key component of the context for the Wylfa Newydd DCO Project and its constituent parts. Volume 1 of the DAS (Application Reference Number: 8.2.1) gives an overview of national, regional and local planning policy, where they are relevant to the determination of the DCO. For the purposes of the DAS, this focuses on policy relating to the principle of development (established in the NPSs) and those that relate specifically to design and access considerations. The Planning Statement (Application Reference Number: 8.1) provides a full analysis of all relevant planning policy.

2.2.2. The relevant NPSs (EN-1 and EN-6) form the primary basis for decisions. These firmly establish the principle of the need for new nuclear power, and that this need is urgent.

2.2.3. Development plan policy and guidance provides further layers of policy support for principles of good design, accessibility and sustainability. This includes Supplementary Planning Guidance (SPG) and the JLDP which specifically relates to the Wylfa Newydd DCO Project. Whilst the NPSs form the primary basis for decision making for the DCO, these policies may be considered important and relevant.

2.2.4. The Logistics Centre would be a business and industry use and the Parc Cybi site is specifically allocated as an employment site (suitable for B1, B2 and B8) in the JLDP.

2.2.5. The site lies within the Anglesey AONB, but exceptional circumstances, such as wider site economic benefits, have previously been found to exist to justify employment development here both in previously approved planning applications and through the allocation of the site through Development Plans.

3 PRINCIPLES OF PROPOSED DEVELOPMENT

3.1 OBJECTIVES
3.2 CONSULTATION AND DESIGN EVOLUTION
3.3 PARAMETERS FOR IMPLEMENTATION
3.4 DESIGN PRINCIPLES

Principles of the proposed development

3.1 OBJECTIVES

3.1.1. This chapter explains how the operational requirements and analysis of the site context have been developed through design evolution, with regard to pre-application consultation. This has informed a series of 'design principles' which will control the detailed design of the Logistics Centre in the event that Horizon no longer wish to proceed with the submitted detailed design, alongside the parameters set in the DCO parameters tables.

3.1.2. The Logistics Centre would be in operation only for the duration of the construction of the Wylfa Newydd Power Station. When the facility is no longer needed it would be made available for a suitable alternative use.

3.1.3. The concept for the facility is to place the various buildings sensitively into the landscape, with minimum disturbance to the key landscape and environmental features that reflect the distinctiveness of the local character.

3.1.4. The layout of the Logistics Centre has been developed to:

- accommodate the required number of vehicles;
- respond to the context of the site as far as possible;
- retain key site characteristics; and
- reduce the potential impact of the building and lighting.

3.1.5. To meet this objective, the design approach identifies the key areas of ecological and hydrological value and incorporates measures to protect and enhance these valuable assets, embedding them seamlessly within the design. A constraints drawing has been produced and is shown in figure 13 above.

3.1.6. The requirements of the site drive the proposal for the facility; however, the location of the office/welfare building has been considered to limit the impact on the views across the front of the site between the Ty Mawr Standing Stone and the Trefignath Burial Chamber, and avoid the potentially sensitive archaeological areas on the frontage of the site. Lighting for the site has been developed to provide the minimum level of lighting and retain the spill of the lighting to within the site.

3.2 CONSULTATION AND DESIGN EVOLUTION

CONSULTATION

3.2.1. Volume 1 of the DAS (Application Reference Number: 8.2.1) provides an introduction to the consultation process for the Wylfa Newydd DCO Project, which is set out in detail in the Consultation Report (Application Reference Number: 5.1). Appendix 11-6 of the Planning Statement (Application Reference Number: 8.1) summarises the outcome of consultation in relation to the Logistics Centre.

3.2.2. The three main stages of the consultation process, between 2014 and 2017 are explained in the documents above.

3.2.3. At Stage One-Application Consultation, general support was expressed for the need and proposals for Associated Development, particularly as it related to reducing traffic congestion throughout the construction phase of the Wylfa Newydd DCO Project.

3.2.4. The IACC noted that the provision of a Logistics Centre would be broadly in line with their Wylfa SPG, but would like more consideration of the potential legacy benefits for the island.

3.2.5. Whilst Horizon received a number of supportive comments on the principle of the proposals at the Project Update consultation in 2016, Horizon only consulted on very high level plans for the Associated Development sites at this stage. As such, very limited feedback was received on the detailed placement of building and parking areas.

3.2.6. In response to comments raised highlighting that landscaping would be required to minimise visual impact of the proposals Horizon has sought to retain existing landscape features as far as possible.

3.2.7. Feedback from the Stage Two Pre-Application Consultation highlighted the support of the IACC for the proposal to locate the Logistics Centre at Parc Cybi. This was countered by the preference of certain stakeholders (including Welsh Government and Gwynedd Council) to locate a logistics facility in Gwynedd in order to (among other things) reduce pressure on the road network. Some concern was expressed about the potential for HGV traffic to increase congestion on the A5025 in the event of an incident along that route.

3.2.8. Horizon considers that Parc Cybi remains the most appropriate site for the Logistics Centre both in traffic terms and planning policy.

3.2.9. Since the Stage Two Pre-Application Consultation, the Logistics Centre has been redesigned to ensure that in the event of an incident along the A5025 the site has the capacity to retain additional vehicles so that they do not materially add to any congestion.

3.2.10. The following is a summary of the main design changes that occurred between Stage Two Pre-Application Consultation and Stage Three Pre-Application Consultation due to further environmental consideration and engagement with potential operators of the Logistics Centre:

- the welfare and security building has changed in size slightly from 22m long, 16 wide and 6m high to a maximum of 29m long, 16m wide and 4m high and is now expected to be located at the west of the site;
- the 1,900sqm logistics warehouse has been replaced by a covered inspection bay that will be a maximum of 23m long, 13m wide and 6m high as it is now proposed that deliveries would be consolidated at source where possible and not on-site;
- the number of security gatehouses has been reduced to one due to simplified access and exit arrangements;
- the site can now accommodate up to 100 HGVs at any one time. HGV parking is more centrally located to simplify HGV circulation; and
- the majority of the rock outcrop on the site is now retained and incorporated into the design of the Logistics Centre.

3.2.11. Since the Stage Two Pre-Application Consultation the Wylfa Newydd DCO Project went through an important period of review. This review included Horizon's appointment of a joint venture partner and various consultants to take forward its proposals for project design and deliverability and, secondly, Horizon's consideration of the feedback from the Stage Two Pre-Application Consultation and other engagement with local stakeholders.

3.2.12. Comments received during the Stage Three Pre-Application Consultation relating to the Logistics Centre site at Parc Cybi included the consideration of providing more substantial landscaping to screen the site from the surrounding sensitive landscape and cultural heritage receptors. The landscaping strategy would however seek to retain vegetation features on-site where feasible.

3.2.13. Clarification of the number of vehicle movements to and from the site was requested through the Stage Three Consultation. Further detail regarding this is provided in chapter 7 of the Transport Assessment (Environmental Statement Volume C - Project wide effects C2 - Traffic and Transport, Application Reference Number: 6.3.2).

3.2.14. Concerns were raised regarding the 24-hour a day working of the site and the impacts to the community of this. To protect local amenities, mitigation measures are proposed to limit adverse impacts. For example, the construction of the Logistics Centre will meet the requirements as set out in the Logistics Centre sub-Code of Construction Practice (CoCP) (Application Reference Number: 8.11). Generic noise and vibration control measures include, for example, locating noisy plant as far away as practicable from sensitive areas and shutting down equipment when not in use. The Environmental Statement (Volume H - Logistics Centre H5 - Air quality, Application Reference Number: 6.8.5, and Volume H - Logistics Centre H6 - Noise and vibration, Application Reference Number: 6.8.6) confirms that there will not be significant adverse air quality or noise impacts during the operational period. The operation of the Logistics Centre would also meet the requirements as set out in the CoCP. Good practice mitigation measures during the operation of the Logistics Centre would include:

- where practicable, HGV engines would be switched off whilst queuing to use the scanner facility;
- HGVs would not wait or queue on the public highway with engines running (unless required to power the operation of the vehicle); and
- the use of horns would not be permitted.

3.2.15. Comments were also received regarding the choice of the site location, including suggestions for alternative locations. As confirmed in the Site Selection Report (Application Reference Number: 8.24.6), Horizon considers that upon review of all material factors, including having regard to planning policy and guidance, Parc Cybi is the most appropriate site. The site is allocated and safeguarded in the Development Plan for employment purposes including B1, B2 and B8 uses and is therefore preferable in planning terms to unallocated sites outside the settlement boundaries. The site benefits from extant planning permission. The implication of which is that major development on this AONB site is already consented and, therefore, there would be an impact regardless of this site being considered for redevelopment to accommodate a Logistics Centre. The site accords with the JLDP and locational guidance in the SPG, fully meets Horizon's functional requirements and is easily accessible from the A55.

STAKEHOLDER ENGAGEMENT

3.2.16. The design of the facility has been developed in consultation with a number of stakeholders including, but not limited to, the following.

- IACC: the local authority and planning authority;
- Design Commission for Wales (DCfW): established by the National Assembly for Wales to promote good design; they support the local planning authority to 'capture the value of high quality design for better outcomes and a better return on investment';
- Natural Resources Wales (NRW): principal advisor to Welsh Government about issues relating to the environment and its natural resources. Regulator to protect people and the environment including marine, forest and waste industries, and prosecuting those who breach the regulations that NRW are responsible for. Designator for Sites of Special Scientific Interest, areas of particular value for their wildlife or geology, AONBs and National Parks, as well as declaring National Nature Reserves;
- Scottish Power Energy Networks: principal electricity power supplier in the area. Provides advice on existing and proposed power supply requirements;
- Crime Prevention Design Advisor (North Wales Police): provides crime prevention and security advice with particular emphasis on 'Secured by Design' principles; and
- Fire Safety Officer (North Wales Fire and Rescue Service): provides fire prevention and strategy advice.

SUMMARY OF DESIGN EVOLUTION

3.2.17. This section provides an overview of the overall design development of the Logistics Centre at Parc Cybi.

3.2.18. The design evolution started with a requirement to provide parking for up to 69 heavy to light good vehicles, warehousing and driver facilities.

3.2.19. Early studies were undertaken to look at space requirements for the buildings and infrastructure on the land available. Environmental and site data was also gathered to inform the design. From the environmental data and site analysis, a set of EDOs were developed and a layout evolved to meet the EDOs and the requirements of the facility.

3.2.20. Initial studies looked at achieving a parking layout which minimised the need for reversing and located the buildings along the eastern boundary of the site.

3.2.21. The need to achieve a minimum gradient for the manoeuvring of vehicles required the site to be lifted at the northern side with embankment to transition back to existing ground level.

3.2.22. With the development of the EDOs and the reduction of the warehouse requirements, the site was modified to move the buildings to the north so the sightline between the Neolithic Burial Chamber and the Ty Mawr Standing Stone was maintained as far as practicable, in accordance with pre-application consultation feedback.

3.2.23. Sketches showing the evolution of this site design are shown in figure 14 (1 and 2).

3.2.24. Following project optimisation, it was identified that the facility needed to accommodate additional parking to allow extra capacity should an incident happen on the local road network. Furthermore, consolidation of loads at source would remove the need for a storage building on the site.

3.2.25. With these new requirements, the approach to access to the site was reviewed and a new access at the south-west corner of the site was introduced to allow for more vehicles to queue within the site and off the public highway. This approach also allowed an existing area of rock outcrop to be retained in part and provide a natural barrier to direct incoming vehicles and separate the entrance and exit traffic.

3.2.26. The site facilities were moved to the western side of the site so they sat on the access route into the site to cater for the need to inspect and scan vehicles as they entered the site. This allowed the area to the north of the access and the east of the facility buildings to be utilised for parking.

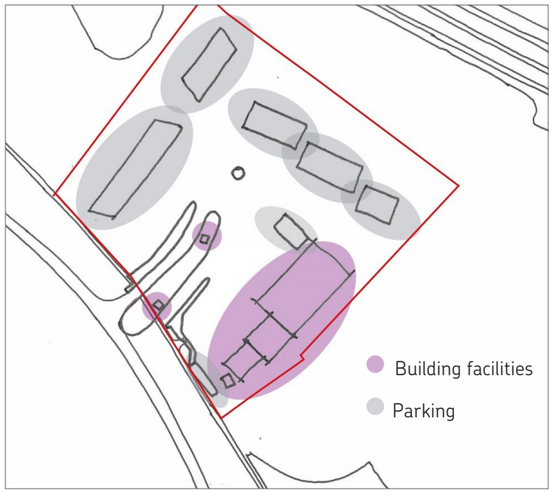
3.2.27. To maximise the available parking spaces, a parking lane approach was introduced.

3.2.28. As the design was developed, this concept was adopted to meet the detailed site requirements.

3.2.29. Sketches showing the evolution of this site design are shown in figure 14 (3 and 4).

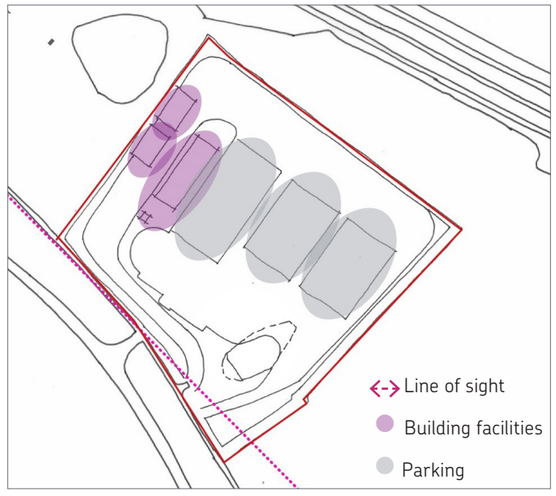
3.2.30. The proposed design has achieved a balance between meeting the functional requirements of a Logistics Centre as outlined in the strategic design brief and EDOs for the site.

- Increases the capacity for parking on the site so improving the resilience of the Wylfa Newydd DCO Project to deal with incidents on the local road network.
- Retains the sightline between the Neolithic Burial Chamber and the Ty Mawr Standing Stone as far as practicable.
- Accommodates queuing vehicles within the site to keep the public road clear.
- Retains, in part, the existing rock outcrop.
- Existing boundary treatments are retained where possible.
- Intelligent lighting systems will be used that enables lighting levels to be reduced or switched off when not required.



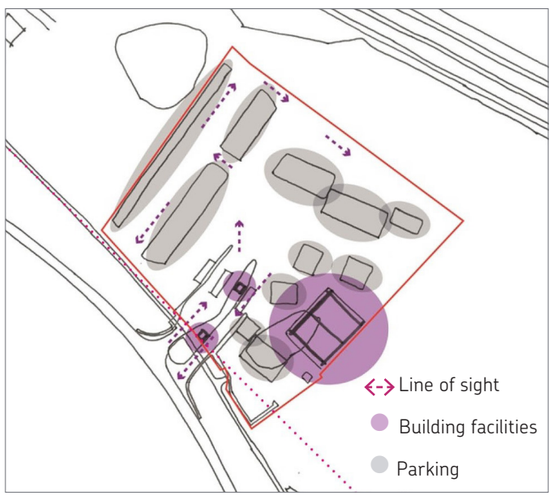
1) **Design development 01**: An initial capacity study was undertaken to determine the viability of the site. The design requirements included:

   - up to 57 no. HGV parking bays;
   - 4 no. MGV (medium goods vehicles) parking bays;
   - 6 no. LGV (small goods vehicles) parking bays;
   - 2 no. HGV loading / unloading only bays adjacent to the warehouse building footprint;
   - the Logistics Centre warehouse building (1900m^2) – including controlled site entry/exit security gatehouse and security facilities, staff/driver welfare facilities;
   - circulation around the site to allow the manoeuvrability of a typical 16.5m long 38 to 40 Ton Multi-Axle Articulated Vehicle in the forward motion – eliminating the need for any vehicle using reversing manoeuvres; and
   - the allowance for 10 no. facility staff parking bays plus 2 no. accessible spaces located at the southern end of the site, adjacent to the welfare/security building.



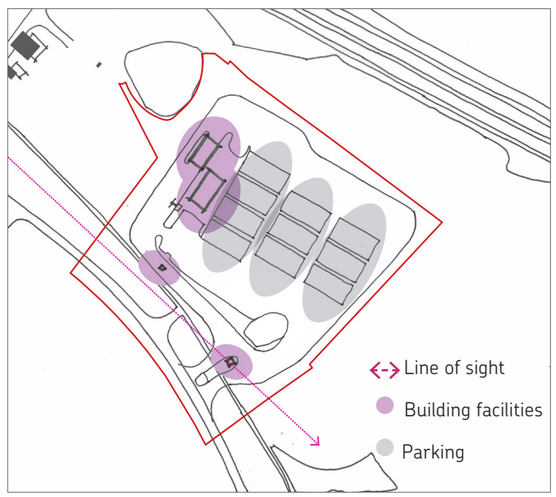
3) **Design development 03**: Environmental constraints, topographical surveys were identified and a response developed to protect and incorporate, where appropriate, key areas of ecological value. The study allowed for:

   - the key findings from the environmental surveys indicated rock outcrop located towards the south eastern corner of the site as ecologically valuable, where possible actions were taken to minimise the loss of rock outcrop;
   - a zone of visibility was defined between the Neolithic Burial Chamber and Ty Mawr Standing Stone was developed to prevent visual obstruction to the historic line of sight;
   - up to 100 no. HGV parking bays;
   - up to 10 no. facility staff parking bays plus 2 no. accessible spaces relocated to maximise HGV parking and manoeuvrability;
   - site ingress/egress moved south to allow for the queuing of 8 no. HGV vehicles within the site perimeter;
   - Welfare/security scanners / vehicle Inspection tent move to the western boundary to avoid the loss of rock outcrop; and
   - proposed design levels were added as a result of the topographical survey. To establish a steady fall across the site a 4.5m offset zone on the western, eastern and northern boundary was established to allow space for retaining wall structures / engineered slopes.



2) **Design development 02**: The initial layout, based on design development 01, was refined to include:

   - welfare and warehouse buildings moved north up the eastern boundary as previous archaeological studies identified the south eastern corner an area not to be developed, due to the need to preserve historical line of sight between the Neolithic Burial Chamber and the Ty Mawr Standing Stone;
   - retention of up to 57 no. HGV parking bays;
   - retention of up to 4no. MGV parking bays;
   - retention of up to 8 no. LGV parking bays;
   - retention of up to 2 no. HGV loading/unloading only bays;
   - retention of up to 10 no. facility staff parking bays plus 2 no. accessible spaces located to the south of the proposed welfare/security building; and
   - Site ingress/egress uses the existing site entrance as demonstrated in Design Development 01.



4) **Design development 04**: The design was further refined to incorporate:

   - retention of up to 100 no. HGV parking bays;
   - up to 12 no. facility staff parking bays plus 1 no. accessible space and 3 no. electric car charging points;
   - staff parking and accessible spaces relocated to sit adjacent to the office/welfare building;
   - safe pedestrian routing markings onto HGV hardstanding parking area; and
   - two lane access road within the site footprint is proposed at the entrance to allow for a number of coincident HGV arrivals. Entrance and exit to allow for two vehicles to pass in case of blockage.

Figure 14 Evolution of site design

3.3 PARAMETERS FOR IMPLEMENTATION

3.3.1. The 'parameters approach' adopted by Horizon identifies defined envelopes for the construction the Wylfa Newydd DCO Project within which future development will be undertaken.

3.3.2. The reason for adopting this approach is to ensure that Horizon has sufficient flexibility to accommodate any design changes that may be required between the DCO being granted and construction commencing.

3.3.3. The Wylfa Newydd Project as a whole has been developed adopting a parameters approach, but for sites where the design flexibility is relatively fixed, or elements have environmental impacts that need to be controlled/limited, the parameters are defined on a limited basis.

3.3.4. For the Logistics Centre at Parc Cybi, where detailed drawings are submitted for approval, the DCO Requirements enables revised plans to be submitted for approval by the relevant planning authority in accordance with the DCO parameters tables and design principles set out in section 3.4 of this DAS.

POSITIONS OF BUILDINGS AND STRUCTURES

3.3.5. It is proposed that the positions of buildings and structures would be flexible to within a zone relative to the positions shown on the drawings.

BUILDING WIDTH AND LENGTH

3.3.6. It is proposed that the length and width of buildings would have a tolerance to pre-empt differences in manufacturers' module details and cladding extent.

3.4 DESIGN PRINCIPLES

3.4.1. The DCO parameters tables and maximum building dimensions (as described in section 3.3) provide the 'envelope' for the built form of the Logistics Centre, within which alternative schemes could be brought forward.

3.4.2. Where details of design are to be pursuant to a DCO Requirement, these must be in accordance with the following series of design principles.

3.4.3. The operational and functional requirements for the facility, as described in section 1.5 Strategic design brief, and more concisely listed in table 1, underpin the development of these design principles.

3.4.4. Part B explains how the detailed design, sought for approval, has been developed. Appendix B sets out in summary how the design principles may be met in the design proposals, and how the facility meets the principles of 'good design' in accordance with EN-1 and EN-6. Good design criteria outlined in the aforementioned National Policy Statements (NPSs) are described in table 2.

3.4.5. As set out in Volume 1 of the DAS (Application Reference Number: 8.2.1), the Planning Act (2008) places importance on good design. Policy relating to good design for energy infrastructure is set out in NPS EN-1 and policy relating to good design specifically for nuclear power generation is set out in NPS EN-6. These policies are set out in detail in the Planning Statement (Application Reference Number: 8.1).

3.4.6. While there is no hierarchy in the principles of good design, both NPS EN-1 and EN-6 recognise that the nature of energy infrastructure developments can limit the choice an applicant may have in respect of the visual appearance of buildings. For these reasons, the policies recognise that the achievement of good design goes beyond visual aesthetics and that the functionality of infrastructure is just as important. In this respect, the Planning Inspectorate needs to be satisfied that energy developments are functional and sustainable, and having regarding to regulatory and other constraints, are as attractive, durable and adaptable as possible. In making this assessment, paragraph 2.8.1 of EN-6 confirms that the need to ensure the safety and security of a nuclear station and to control the impacts of its operation, should be given substantial weight in determining whether or not the principles of 'good design' under EN-1 have been achieved.

3.4.7. For the purposes of this DAS, policy relating to good design has been grouped into the six themes set out in table 2. Grouping them in this way does not seek to alter the meaning of policy and is applied to help demonstrate how the design principles in this chapter underpin the delivery of good design.

Table 2 Good design

GOOD DESIGN	CORRESPONDING THEME
The applicant should take into account functionality including fitness for purpose (NPS EN-1, Para 4.5.1). The need to ensure the safety and security of the power station, and the need to control the impacts of its operations, must be given substantial weight given the importance of these factors to the operation of a nuclear power station (NPS EN-6, Para 2.8.1). The GDA, site licensing and environmental permitting processes will consider certain aspects of design, which the IPC should not replicate (NPS EN-6, Para 2.8.4).	Functionality
Applying good design to nuclear power stations means giving substantial weight to the need to control the impacts of its operations (NPS EN-6, Para 2.8.3). Good design can act to mitigate the impacts of nuclear power stations, such as landscape and visual impacts (NPS EN-6 Para 2.8.3). Good design can help mitigate adverse impacts through use of appropriate technologies. (NPS EN-1, Para 4.5.2).	Mitigation
The appearance should demonstrate good aesthetic as far as possible (NPS EN-1, Para 4.5.3) Energy infrastructure developments should be sustainable and, having regard to regulatory and other constraints, should be as attractive, durable and adaptable as they can be (NPS EN-1, Para 4.5.3). The applicant should take into account aesthetics, including its contribution to the quality of the area in which it would be located (NPS EN-1, Para 4.5.3). The applicant may not have any or very limited choice in the physical appearance of some energy infrastructure (NPS EN-1, Para 4.5.3).	Appearance
Applying good design to energy projects should produce sustainable infrastructure that is sensitive to place (NPS EN-1, Para 4.5.3). There may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3).	Character
Applying good design to energy projects should produce sustainable infrastructure that is efficient in the use of natural resources and energy used in their construction and appearance. (NPS EN-1, Para 4.5.3).	Sustainability
For some structures where the functional requirements may change over the lifetime of the structure, such as sea defences, they should be capable of being adapted if the need were to arise in future without major re-design or significant physical disruption (NPS EN-6, Para 2.8.2).	Adaptability

This table should be read in conjunction with Appendix B, which sets out how the design principles may be met in the design proposals, and how they meet the principles of 'good design'.

KEY DESIGN PRINCIPLES

3.4.8. The site will be arranged to allow for efficient circulation on the site, minimise unnecessary vehicle flows and create efficient logistics vehicle inspection and storage.

3.4.9. Buildings (with the exception of the security kiosk and driver instruction point) and the HGV parking area will be sited to the north half of the Logistics Centre site to maintain the sight line between the Ty Mawr Standing Stone and the Trefignath Burial Chamber Scheduled Monuments.

3.4.10. The architectural design will use simple building forms to recognise the function of the facility whilst still complementing its surroundings and integrating with the landscape.

3.4.11. Hard and soft landscaping will be used to help integrate the Logistics Centre appropriately into the surrounding landscape.

3.4.12. All buildings and structures will be removed following the operational period of the Logistics Centre to reinstate an open view between the Ty Mawr Standing Stone and the Trefignath Burial Chamber Scheduled Monuments.

3.4.13. A low energy design will generally be adopted, based on the hierarchy of minimising use, reducing waste, recycling and on-site generation.

MASTERPLANNING PRINCIPLES

3.4.14. The design of the Logistics Centre will provide space within the site boundary for up to eight HGVs to queue at any time prior to entry through the security kiosks of the site, to prevent any queuing on Parc Cybi Road.

3.4.15. The site will be arranged to allow for efficient circulation on the site, minimise unnecessary vehicle flows and create efficient logistics vehicle storage.

3.4.16. HGV parking bays will be arranged in rows. Allocation of vehicles to rows will be controlled to ensure vehicles can be accessed at their allotted times (reducing need for HGVs to reverse). Vehicles will be despatched in a controlled fashion to the Wylfa Newydd Development Area.

3.4.17. Buildings will be as small as reasonably practicable within operational requirements.

3.4.18. The design will minimise harm to the setting of, and retain intervisibility between the Ty Mawr Standing Stone and the Trefignath Burial Chamber Scheduled Monuments, as far as reasonably practicable within security and operational requirements.

3.4.19. The proposed access point will accommodate the Lôn Trefignath Cycle Path and the existing dual use cycleway/footway. A zebra crossing will be provided across the site access and egress.

3.4.20. Site security and a secure fenced boundary will be incorporated into the design of the Logistics Centre to ensure the safe and secure operation of the facility and deter crime.

3.4.21. The kiosks will be provided at the entrance and exit barriers to allow the manual operation of these barriers and to assist with the turnaround process if necessary.

BUILDING DESIGN PRINCIPLES

3.4.22. The architectural design of proposed buildings and structures will use simple building forms to recognise the function of the facility and its industrial location, whilst still complementing its surroundings and integrating with the landscape and reducing adverse visual effects.

3.4.23. The number, massing and siting of buildings which comprise the Logistics Centre will serve to reduce the impact on the Scheduled Monuments, as far as reasonably practicable within security and operational requirements.

3.4.24. Use of low-level structures with neutral colours for the logistics offices and vehicle inspection facility.

3.4.25. External window will be provided to all offices, meeting rooms and the canteen where appropriate.

LANDSCAPE DESIGN PRINCIPLES

3.4.26. There will be hedgerow planting to the north of the Logistics Centre site to reinforce and enhance existing hedgerows.

3.4.27. Hard and soft landscaping will be used to help integrate the Logistics Centre appropriately into the surrounding landscape. Where practicable, existing hedgerows and stone walls will be retained and enhanced to define and reinforce the boundaries of the site.

3.4.28. The section of wall, which forms a boundary between the Lôn Trefignath and the site will be demolished in order to provide a new site access, the existing site entrance will be stopped up and a wall constructed alongside the Lôn Trefignath Cycle Path.

3.4.29. The existing stone wall to the south-west of the Logistics Centre site will be restored.

3.4.30. Any soft landscaping areas will be seeded with appropriate grassland species to help integrate the site into the surrounding landscape.

3.4.31. Closed circuit television (CCTV) will be provided at strategic locations within the site.

SUSTAINABILITY PRINCIPLES

3.4.32. The Logistics Centre will include water-efficient fittings which help reduce water consumption.

3.4.33. As far as practicable, the lighting design for the site will mitigate the spill into adjacent habitats, and employ a control system which only illuminates those areas where activities are occurring.

3.4.34. The drainage design will include measures to attenuate all surface water runoff and prevent changes in water quality and quantity affecting aquatic habitats by provision of an oil/water interceptor. Drainage will be designed to mitigate any significant effects on the attenuation pond.

3.4.35. All surface water runoff will be passed through an oil/water interceptor on the drainage outfall before passing through a below-ground geocellular attenuation tank. The vehicle hardstanding will be constructed using impermeable paving. and surface runoff will be routed through a below-ground geocellular storage system. The maximum discharge will be attenuated to meet the criteria used for the design of the existing retention pond into which the surface water will be discharged.

PART B: DESIGN PROPOSALS

4 DETAILED PROPOSALS

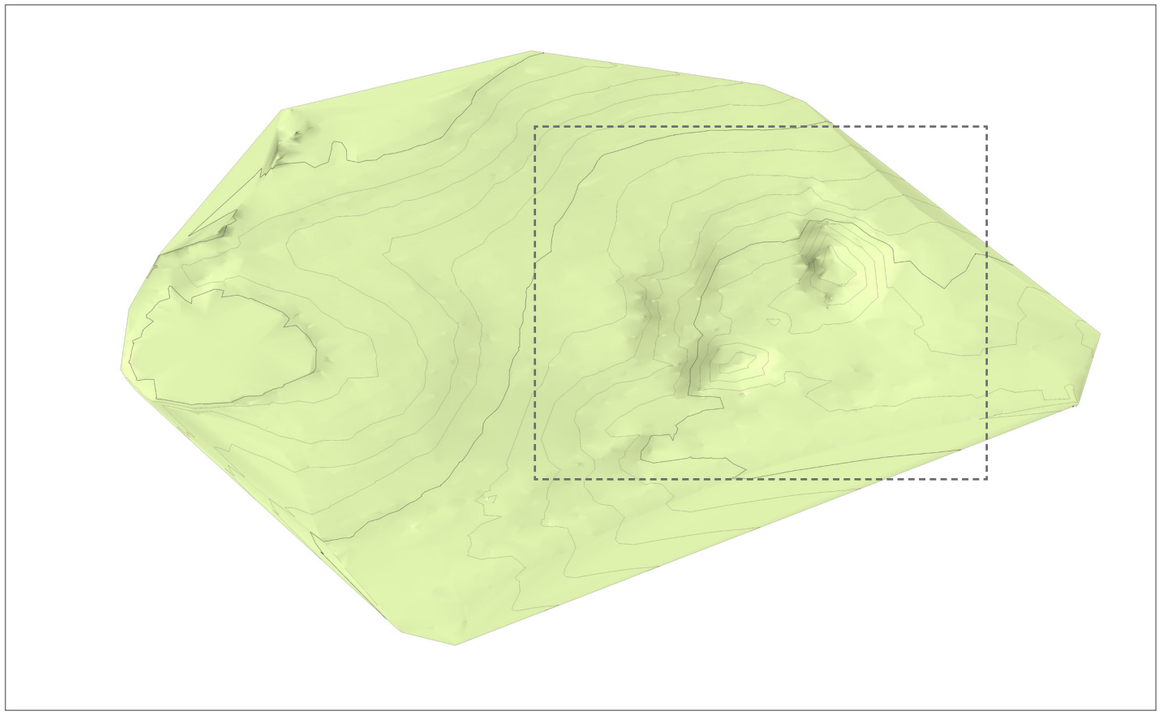
4.1 THE OVERALL SITE SCALE
4.2 LANDSCAPE PROPOSALS
4.3 ARCHITECTURAL BUILDING DESIGN PROPOSALS
4.4 BUILDING SERVICES ENGINEERING PROPOSALS
4.5 EXTERNAL LIGHTING PROPOSALS

Detailed proposals

4.1 THE OVERALL SITE SCALE

4.1.1. The site would be predominantly open parking and inspection areas for goods vehicles travelling to the Wylfa Newydd Development Area. Buildings would be kept to a minimum on the site and would be practical single-storey units or tented structures for staff accommodation and inspection facilities. These buildings, with the exception of small kiosks, would be sited north of the line of sight between the Ty Mawr Standing Stone and the Trefignath Burial Chamber.

4.1.2. Refer to figure 15 below for the existing context and proposed massing.



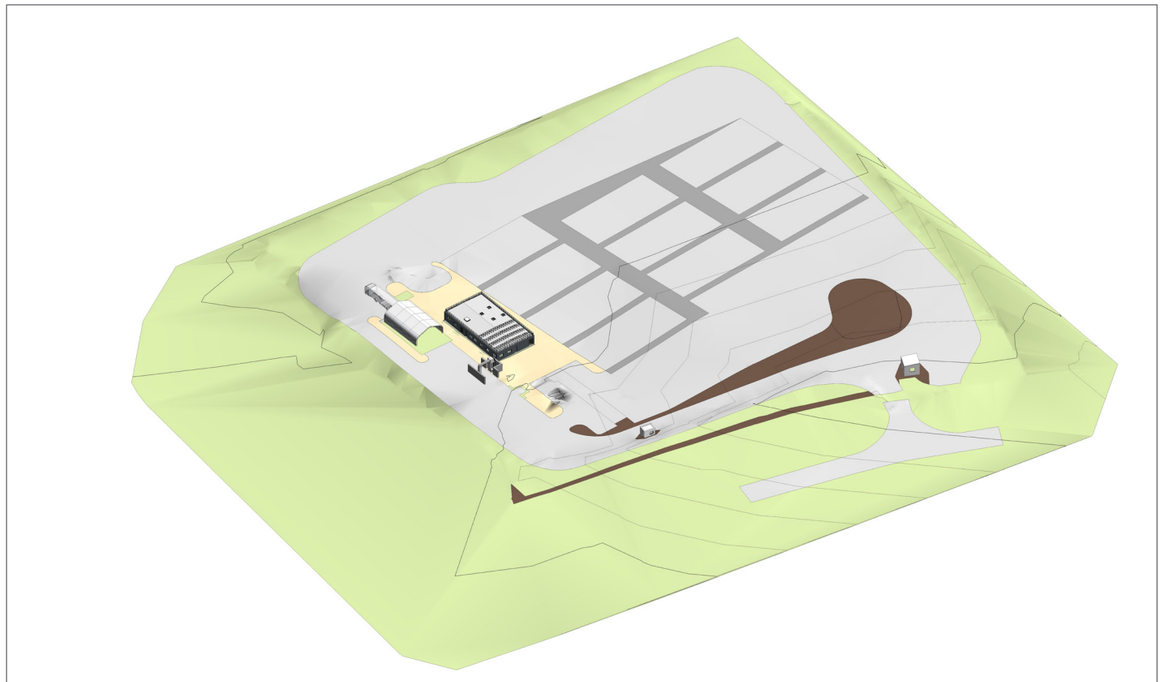


Figure 15 Aerial model image (existing context and proposed massing diagram)

4.2 LANDSCAPE PROPOSALS

INTRODUCTION

4.2.1. The Logistics Centre would be a temporary facility that would be in operation for the duration of the construction of the Power Station.

4.2.2. The design maximises the effective space within the site to provide the required use, focusing attention on the design of the boundaries and their interface with the surrounding landscape.

4.2.3. A habitat and protected species survey of the Parc Cybi site and the surrounding land has been carried out to identify the ecological interests and inform the development of the landscape proposals. For further details, refer to the Environmental Statement Volume H - Logistics Centre H9 - Terrestrial and freshwater ecology (Application Reference Number: 6.8.9).

4.2.4. The key findings are shown visually on figure 16 and include:

- remnant woodland;
- rock outcrop;
- defunct hedge; and
- poor, unimproved grassland.

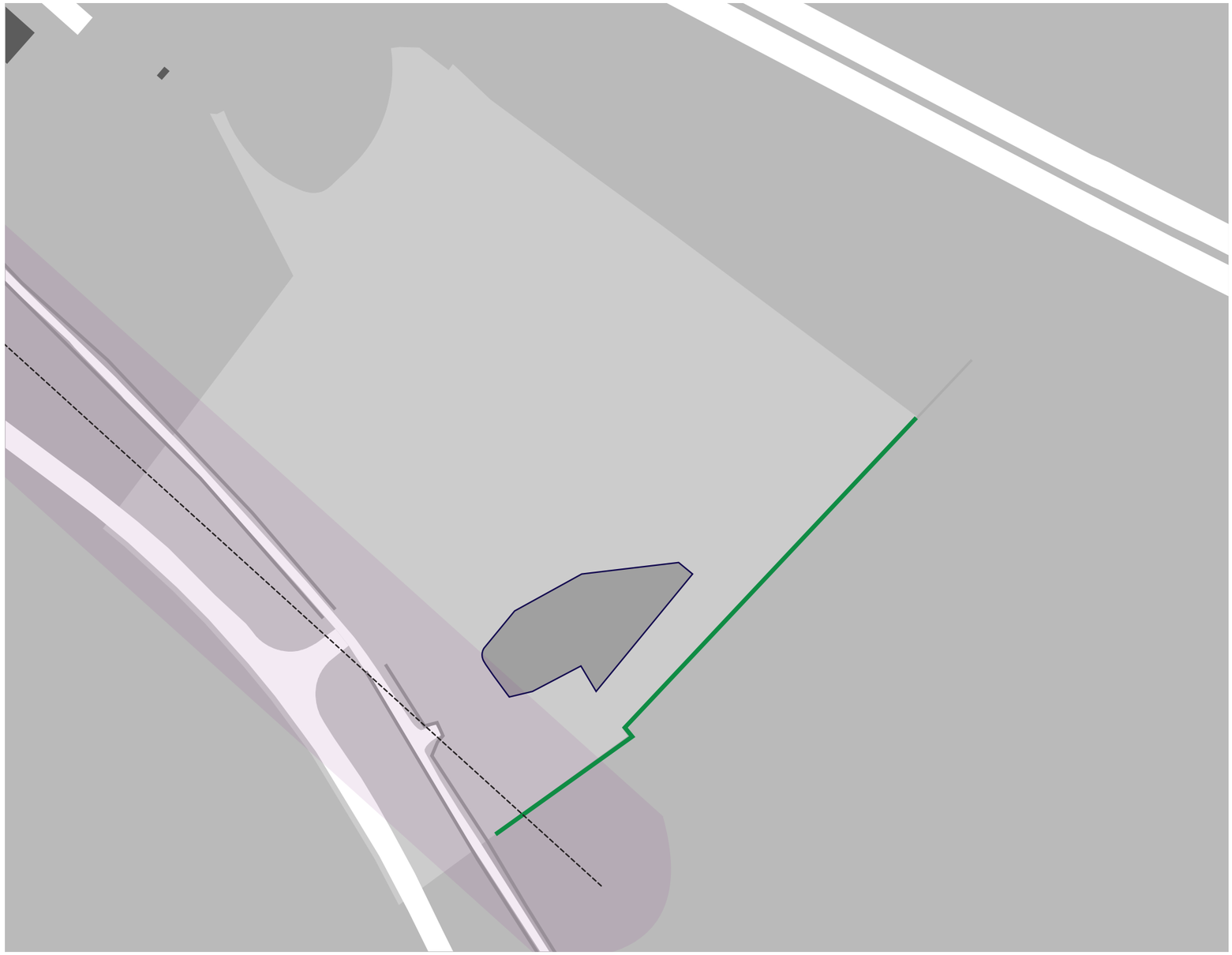


Figure 16 Key findings of environmental and ecological investigations

LANDSCAPE DESIGN

4.2.5. In line with the design principles set out in section 3.4, the landscape design illustrated would concentrate on integrating the site into the surrounding landscape context while, identifying, protecting and incorporating the key existing features into the operational layout.

4.2.6. The illustrated scheme would seek to retain as many existing features as possible, such as hedgerows along the south-eastern boundary, and reinforcement of these where possible to screen potential views of the site. Safety and security are key factors for the successful operation of the site and the illustrated scheme has been arranged to maintain clear visibility within the site.

4.2.7. The design would:

- retain vegetation features on-site where feasible; and
- propose native and local provenance species for any soft landscaping based on the surrounding planting pattern and species make-up.

4.2.8. See figure 17 and figure 18 for indicative cross sections and figure 19 for the indicative landscape masterplan.

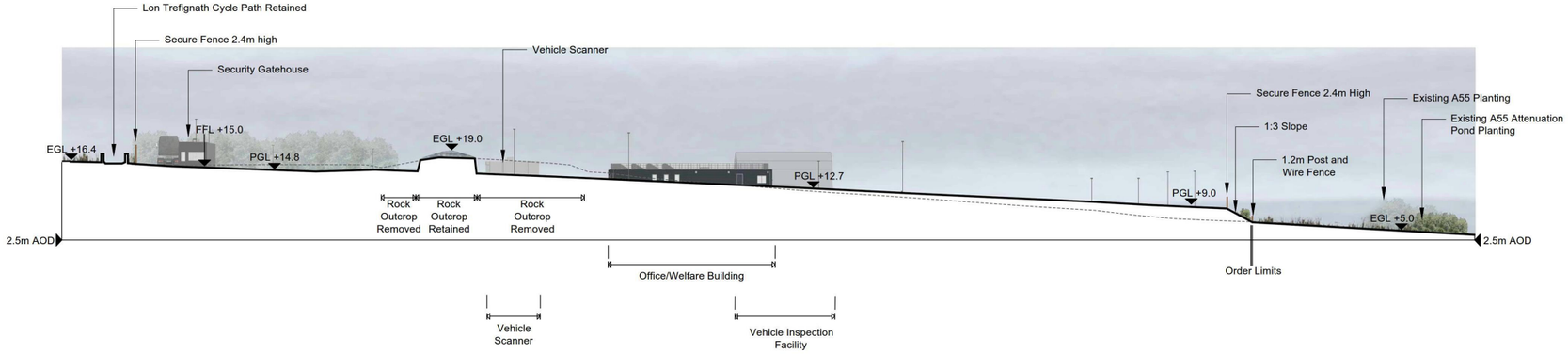


Figure 17 Proposed cross section looking east

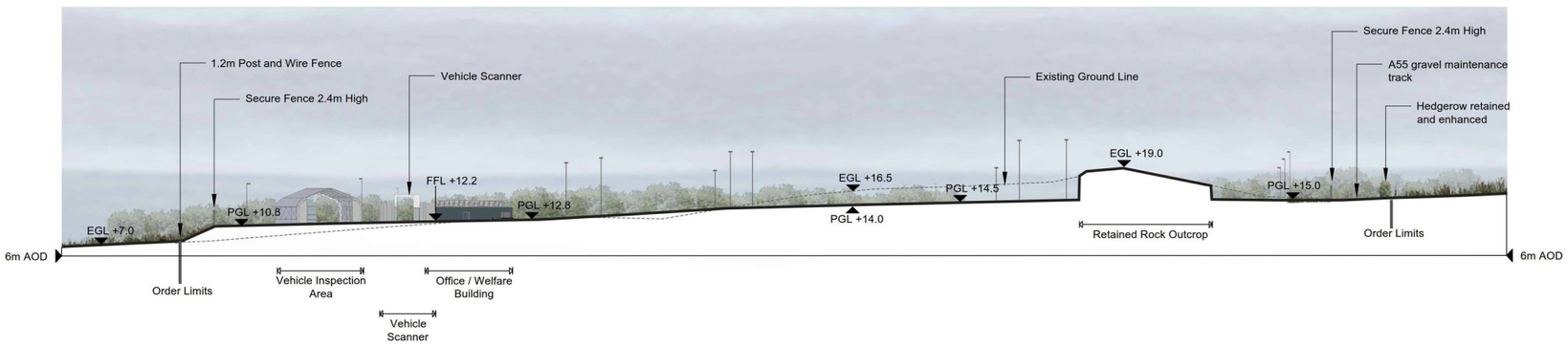


Figure 18 Proposed cross section looking west

Figure 19 Landscape masterplan and general arrangement

PLANTING STRATEGY

4.2.9. The planting strategy sets out a minimal palette to reinforce the simplicity of the overall concept and help to define and reinforce the boundaries of the site.

4.2.10. The key element of the design would be the new hedge planting created on the northern and western boundaries. The detailed design of the hedge planting would incorporate a range of local provenance and native species to forge greater visual and physical connectivity with the surrounding landscape and maximise potential ecological benefits, providing foraging and breeding resources for birds, bats and invertebrates.

4.2.11. Figure 20 visualises the planting strategy.

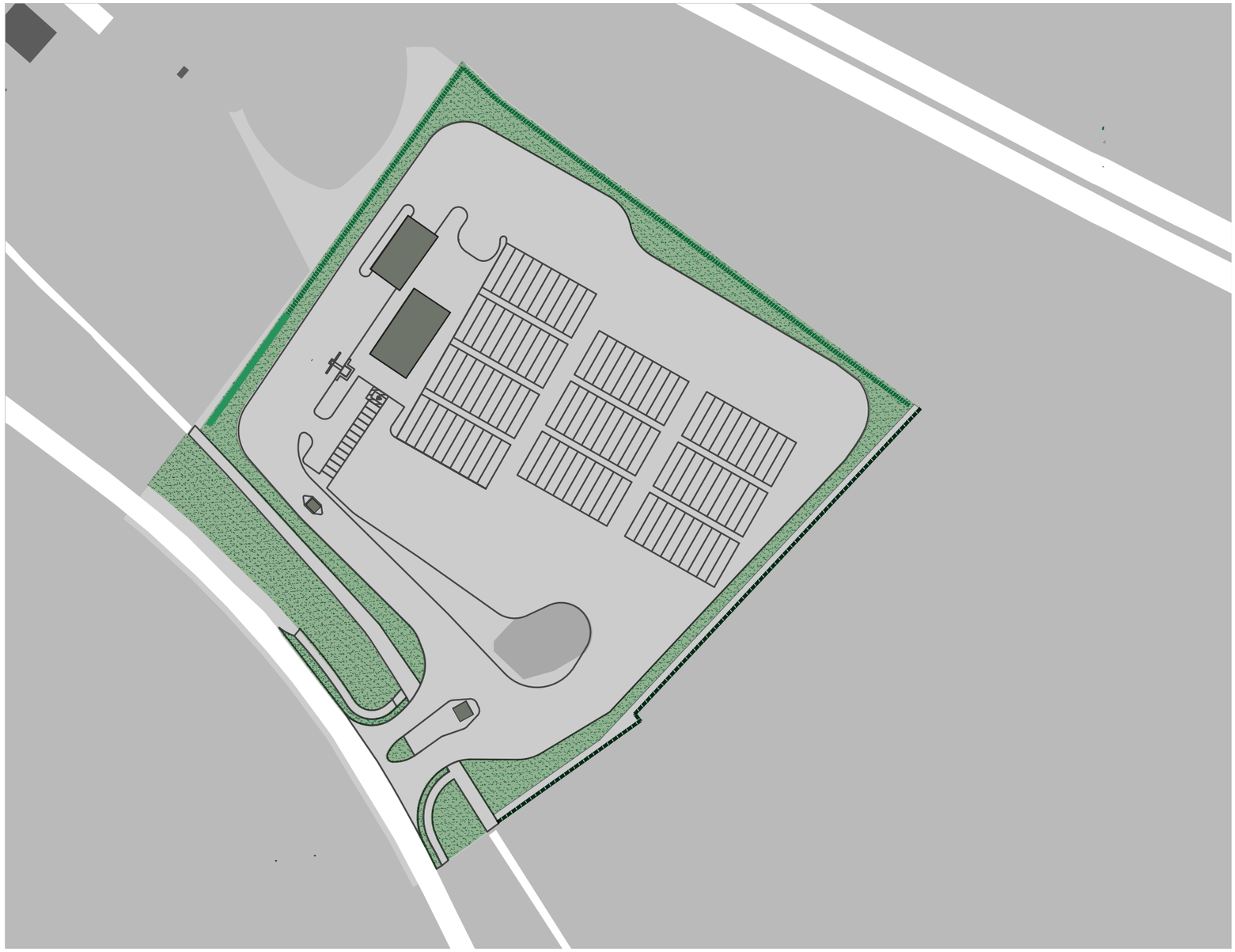


Figure 20 Planting strategy

PLANT SELECTION

4.2.12. Figure 21 is indicative of the selection of plants and colours that are proposed for the site.

SPECIES-RICH GRASSLAND

4.2.13. Species-rich grasses and wildflowers have been selected that are tolerant of semi-shade and suitable for sowing beneath newly planted or established hedgerows. The native seed mix would create a high quality naturalistic sward.

4.2.14. Typical grass and wildflower species could include:

4.2.15. Grass species:

- *Agrostis capillaris* (common bent)
- *Anthoxanthum odoratum* (sweet vernal-grass)
- *Briza media* (quaking grass)
- *Cynosurus cristatus* (crested dogstail)
- *Festuca ovina* (sheep's fescue)
- *Festuca rubra* (red fescue)
- *Phleum bertolonii* (smaller cat's-tail)
- *Trisetum flavescens* (yellow oat-grass)

4.2.16. Wildflower species:

- *Achillea millefolium* (yarrow)
- *Centaurea nigra* (common knapweed)
- *Galium verum* (lady's bedstraw)
- *Leucanthemum vulgare* (oxeye daisy)
- *Poterium sanguisorba* (salad burnet)
- *Prunella vulgaris* (selfheal)
- *Ranunculus acris* (meadow buttercup)
- *Rumex acetosa* (common sorrel)
- *Silene dioica* (red campion)

NATIVE HEDGEROW WITH TREES

4.2.17. Shrub and occasional tree species would be selected that are appropriate to the location and are representative of hedgerows in the surrounding area.

4.2.18. Typical species could include:

4.2.19. Tree species

- *Betula pendula* (birch)
- *Quercus robur* (pendunculate oak)
- *Sorbus aucuparia* (rowan)

4.2.20. Hedgerow species

- *Corylus avellana* (hazel)
- *Crataegus monogyna* (hawthorn)
- *Ilex aquifolium* (holly)
- *Prunus spinosa* (blackthorn)
- *Rosa arvensis* (field rose)
- *Rosa canina* (dog rose)
- *Sambucus nigra* (elder)

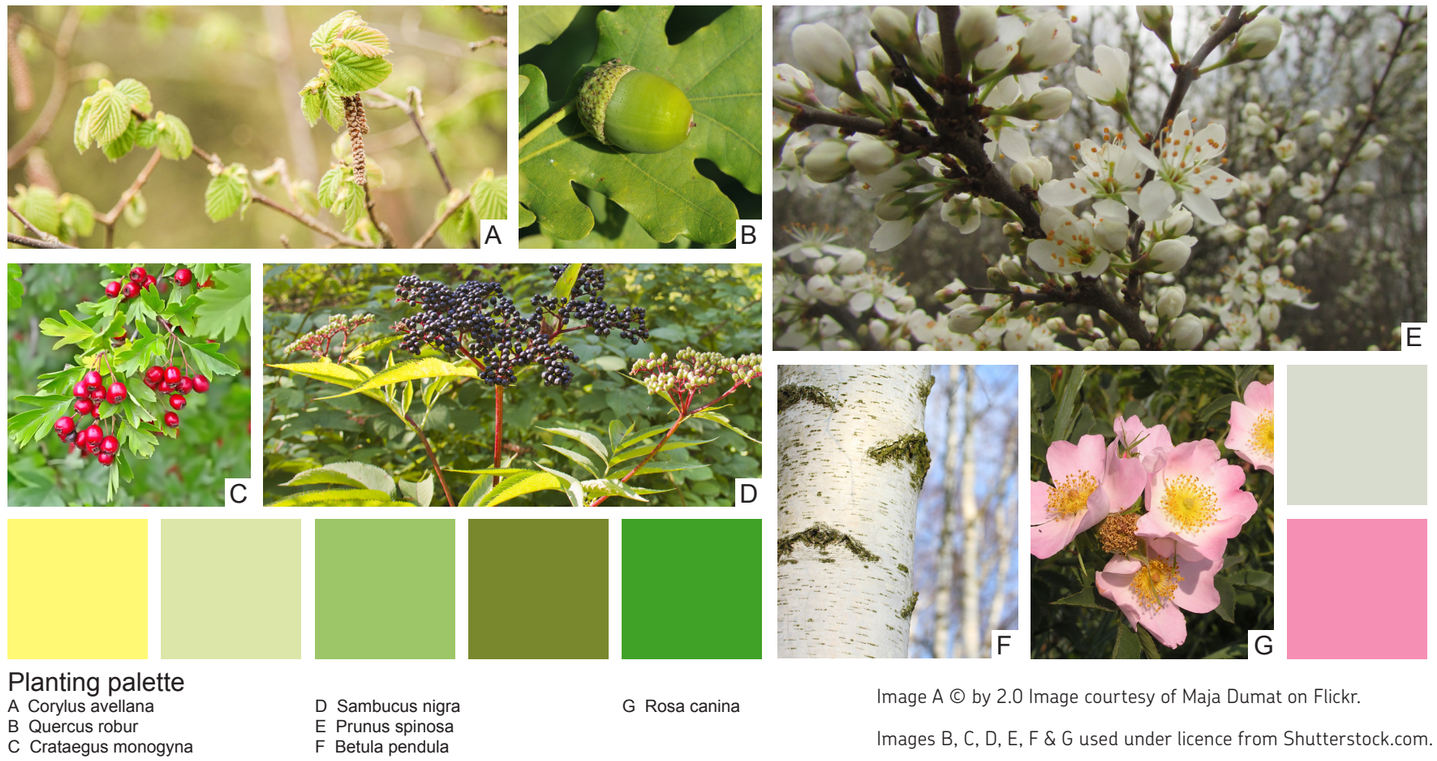


Image A © by 2.0 Image courtesy of Maja Dumat on Flickr.

Images B, C, D, E, F & G used under licence from Shutterstock.com.

Figure 21 Planting palette

HARD LANDSCAPE

4.2.21. The hard landscape scheme design concepts have been defined by the need to provide a safe working environment and are as follows:

- vehicular surfacing, reinforced concrete slab; and
- safe pedestrian routes, demarked areas or concrete block.

4.2.22. A typical hard landscape palette has been developed to fulfil the functional requirements of the temporary scheme. The hard landscaping will be combined with a sustainable storage solution to control the rain water runoff rate from the site.

4.2.23. The typical elements of the palette are as follows, with visuals of the palette in figure 22 and a layout of the strategy in figure 23.

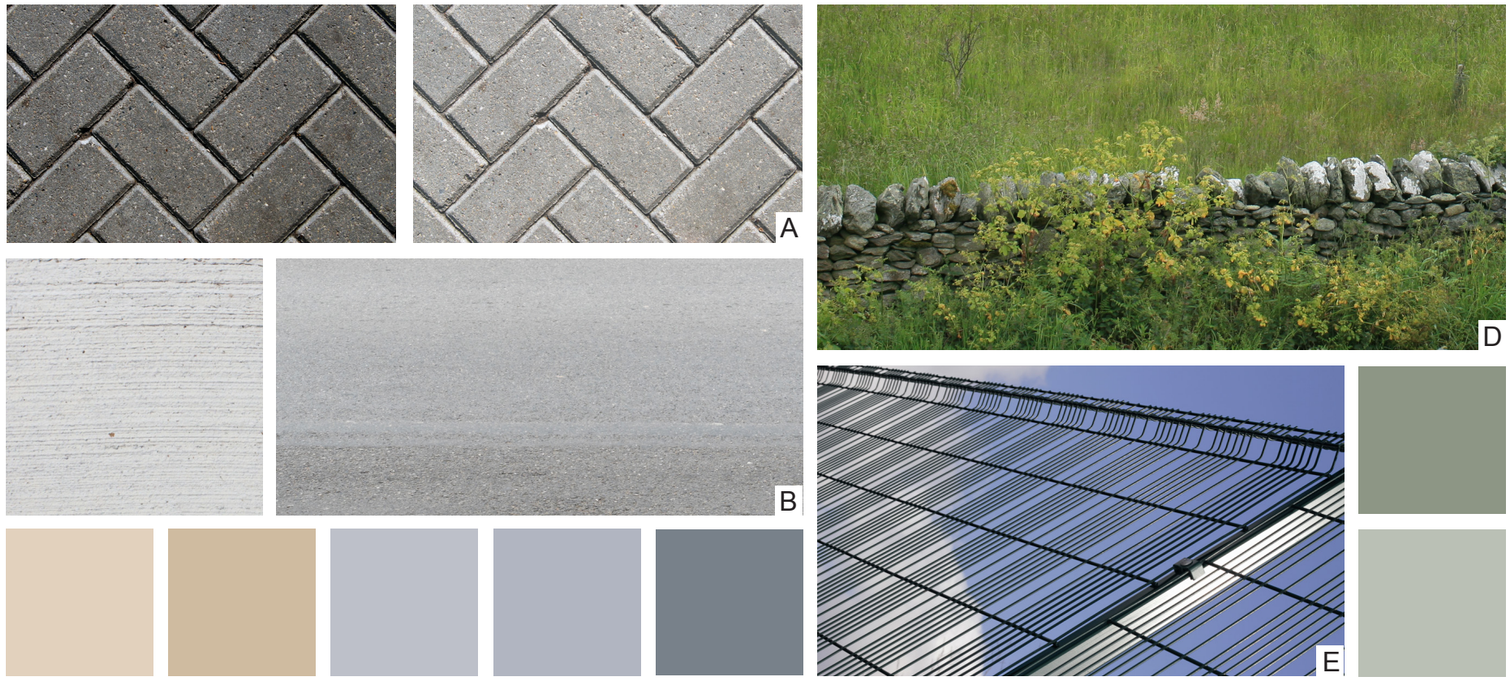


Image E used by permission from CLD Fencing systems.

Figure 22 Indicative hard landscape palette

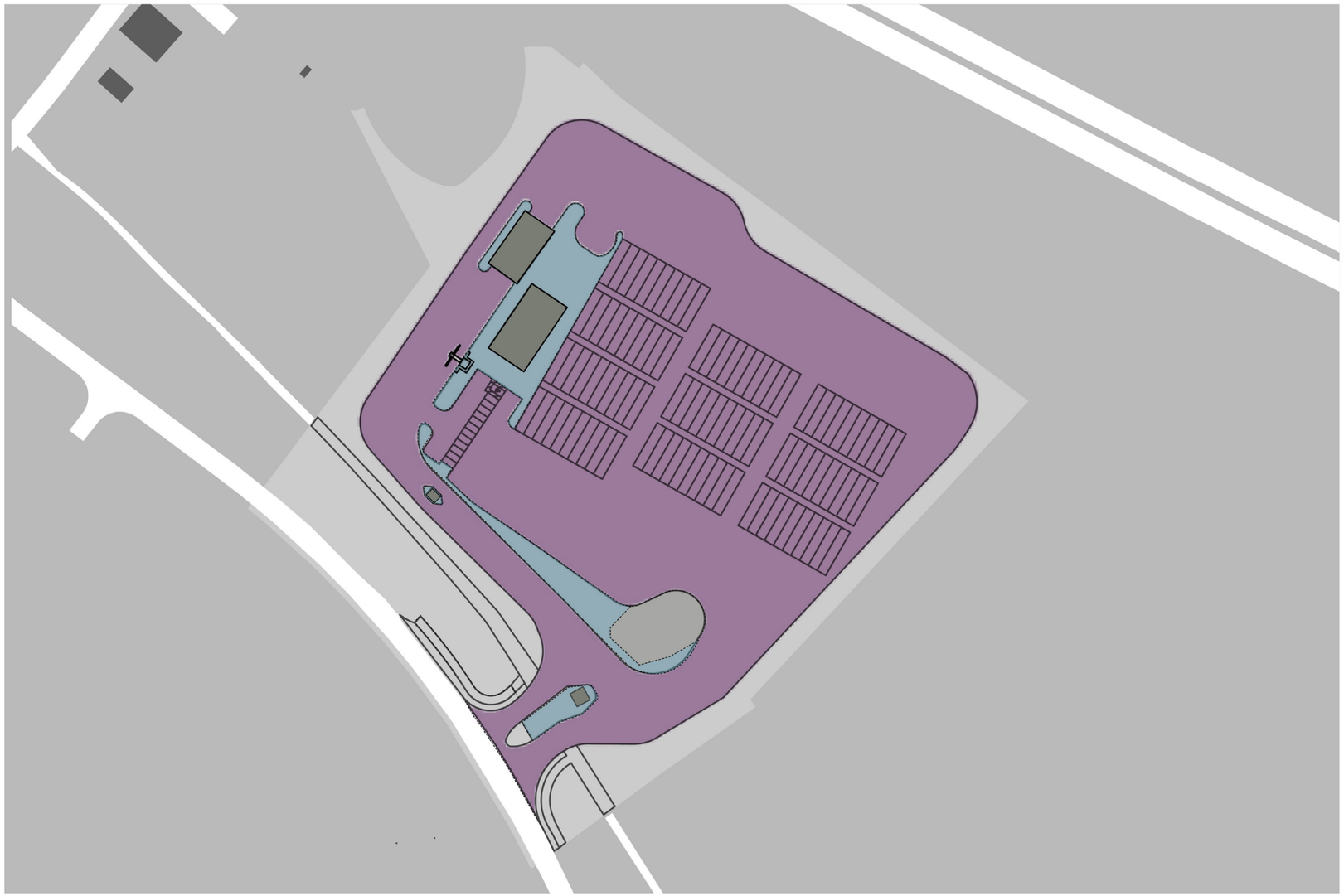


Figure 23 Material strategy

LANDSCAPE MAINTENANCE

4.2.24. On completion of the landscape scheme, all planted and seeded areas would be maintained by Horizon for the lifetime of the development. To ensure the successful establishment and long-term health/vitality:

- A landscape maintenance/establishment strategy would be implemented for the duration of Horizon's tenancy. This would commence immediately after the whole scheme was completed and be carried out in accordance with a detailed specification by Horizon. The planting would be inspected quarterly for a 5-year period, and then annually for a second 5-year period to check the condition of the plants and maintain surrounding grassed areas. Any plant failures would be replaced.

Table 3 Landscape management table

LANDSCAPE	LANDSCAPE MANAGEMENT RECOMMENDATION	GENERIC MANAGEMENT
Species-rich grassland (Grass embankments and cutting on perimeter)	Allow a diversity of grasses and wildflower species that are appropriate to the site, to enhance and incorporate existing species allowing a stronger integration when the site is reinstated. Manage a variety of wildflower species to provide colour, form, texture, scale and variety. Manage in sympathy with adjoining species-rich habitats.	Grass cutting Weed control
Native hedgerow with trees (Boundary treatment)	Use same form of local hedgerow management to integrate with local landscape. Allow framing of views across to wider landscapes. Encourage a variety of species to enhance wildlife corridors. Ensure links between adjacent habitats.	Pruning Hedge cut Weed control Treatment of arisings Replant gaps Accommodate trees when cutting

4.3 ARCHITECTURAL BUILDING DESIGN PROPOSALS

INTRODUCTION

4.3.1. The general design philosophy and approach has been to create simple building forms that are low-level structures with a small environmental impact in the landscape form. The buildings have been designed as part of the overall strategy for the Logistics Centre site.

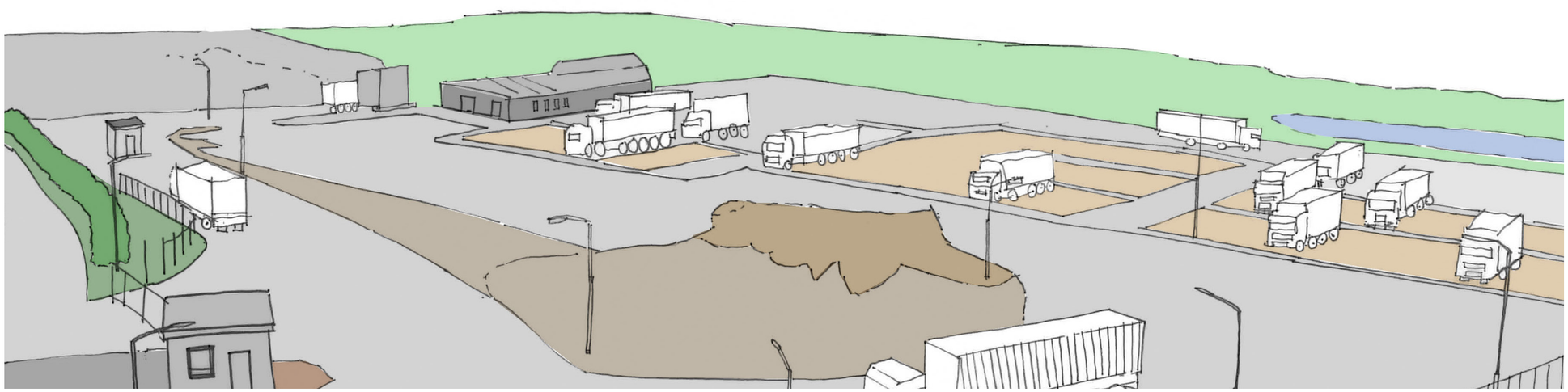
4.3.2. The provision of the Logistics Centre is a key component of the Wylfa DCO Newydd Project's ITTS (Application Reference Number: 6.3.20) during the construction phase of the Power Station. The Logistics Centre would provide 'at grade' distribution and logistics transfer facilities.

4.3.3. The office/welfare building would be located between the access road and vehicle parking bays, so as to optimise the pedestrian route to the building from the vehicle-checking area. Vehicle parking areas are organised into zones to the south-east of the building.

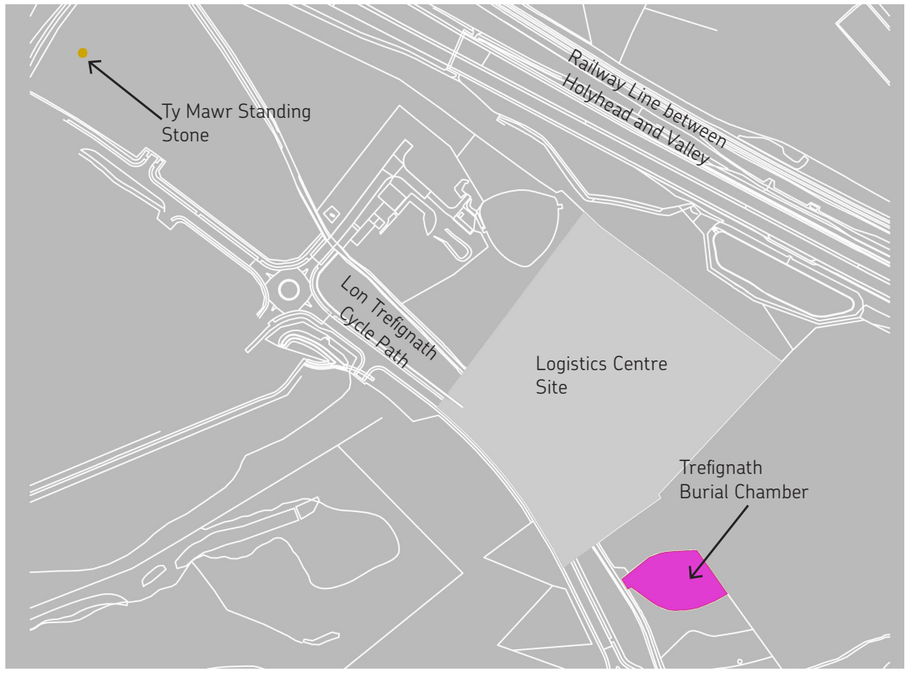
4.3.4. The proposed buildings are temporary and are intended to be dismantled once they are no longer required. The buildings are therefore designed with simplicity and efficiency of construction and removal as a priority. The nature of the buildings as essentially temporary features has been used to generate simple building forms and a kit of parts that complement the context of the overall site. The design has been developed to ensure that it responds to the brief, recognising that although temporary in nature, the developments would be in situ for a number of years. The size and layout of the building has been developed based on the facility operational requirements, people flow requirements and transport interchange.

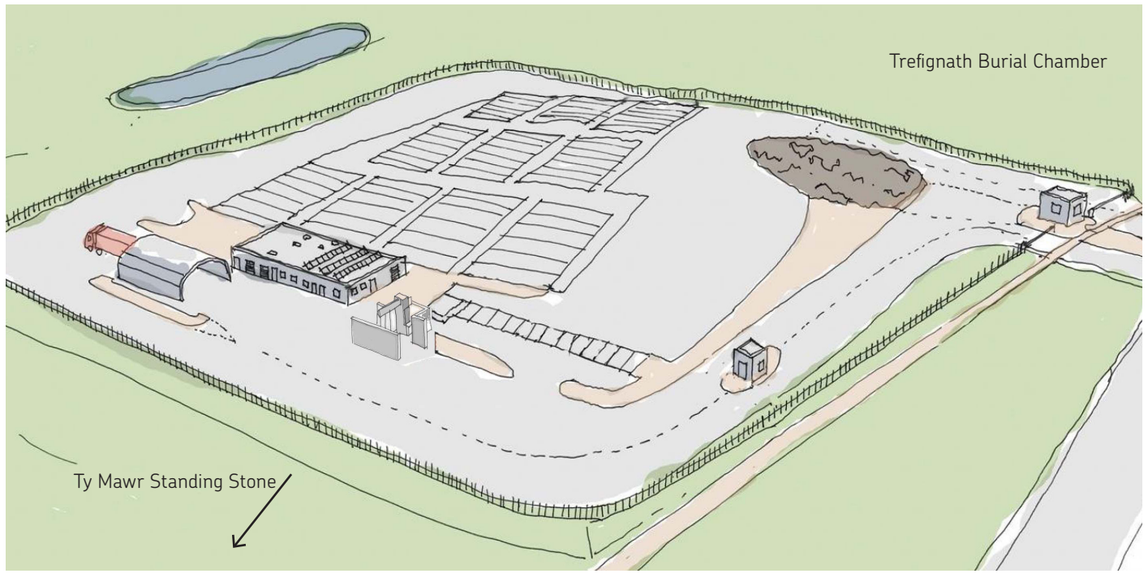
4.3.5. The location of the office/welfare building and the inspection bay structure at the west of the site would meet both access requirements and functional and operational requirements for the logistics operations. The location within the site footprint also minimises the visual impact from key viewpoints. The design siting approach and massing, along with careful use both the existing and the proposed site levels, reduces the overall building visual impact.

4.3.6. Sketches and computer generated images of the proposals are shown in figure 24 and figure 25.



Looking north-west





Aerial site sketch looking north-east

Figure 24 Architectural site sketches

View from the Trefignath Burial Chamber

View from the Ty Mawr Standing Stone

Figure 25 Architectural computer generated images

DESIGN OF BUILDINGS AND STRUCTURES

4.3.7. The design philosophy and general approach, which has led to the development, is based on the efficient circulation on the site, which minimises vehicle movement flows within the site, so that vehicles are inspected, checked and parked ready for transfer to the Wylfa Newydd Development Area. This approach ensures control over the health, safety and security of the staff and operations.

4.3.8. At the entrance to the site is situated a modular security entrance/exit gatehouse; this controls the vehicular access gates. A double queuing lane leads to a kiosk. This provides access to a vehicle scanning hardstanding area, where a full height vehicle scanner is located. There is the option to locate a second scanner in this area.

4.3.9. Vehicles then move through the main vehicle check bay, if required. The covered vehicle inspection bay is a 22m long x 12m wide x 5.5m high covered tensile fabric structure. The function of this facility is to allow the inspection of the lorries; they would then move to the lorry parking zone prior to onward transfer to the Wylfa Newydd Development Area.

4.3.10. The Logistics Centre would provide the facilities for the on-site staff and for lorry drivers in the office/welfare building. It would provide an enclosed canteen for lorry drivers, served by vending facilities, with supporting facilities including sanitary facilities, shower area and first aid room. The secure area for staff would comprise offices, meeting rooms, a separate canteen, showers and toilets, control room and support facilities.

KEY DESIGN FEATURES

4.3.11. The single-storey office/welfare building would contain an office area and catering area with the following features:

- separate entrance for on-site staff and drivers;
- used by persons waiting to depart and/or staying overnight (in their vehicles);
- drivers' toilet and shower facilities;
- fully fitted office with desk space for four staff, including telephones and computer links to Wylfa Newydd Development Area network;
- room that could be used a meeting room for four, or a control room if required; and
- amenities including a staff canteen, lobby/reception, control room, server room, male, female and disabled toilets, a shower and a plant room/cleaner's store.

4.3.12. Catering facilities would comprise a driver's canteen with soft seating and dining tables and would include:

- kitchenette facility incorporating kettle, fridge and microwave;
- dining area to accommodate up to 30 persons at any one time; and
- toilets.

4.3.13. Visual representations of the development of the building are shown in figure 26 and figure 27.

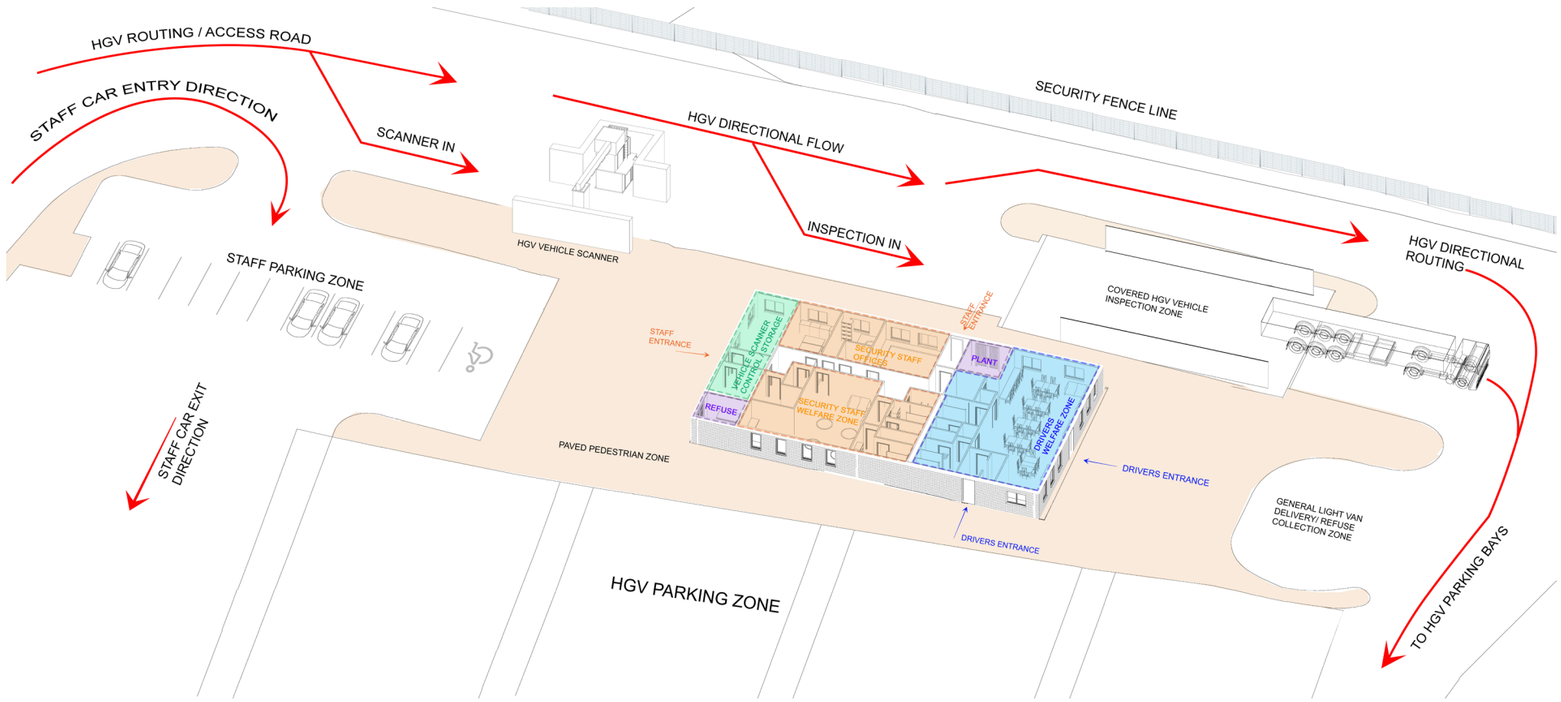


Figure 26 Office/welfare building functional sketch

TYPES OF CONSTRUCTION AND STRUCTURAL SOLUTIONS

4.3.14. The vehicle check facility would be a steel frame structure, with a tensile fabric covering. The lightweight structure would be appropriate to its use and the temporary nature of the facility.

4.3.15. The office/welfare building would be pre-fabricated, assembled from modular units. The factory-made units would be in a light grey finish. The factory-made units would incorporate aluminium double glazed windows in standard proprietary modular units. The building would be 14.8m wide and 26.8m long.

4.3.16. The entrance to site would be equipped with a standard modular site entrance unit/kiosk.

4.3.17. An indicative internal layout of the building is shown in figure 28. Proposed views are shown in figure 29 and figure 30.

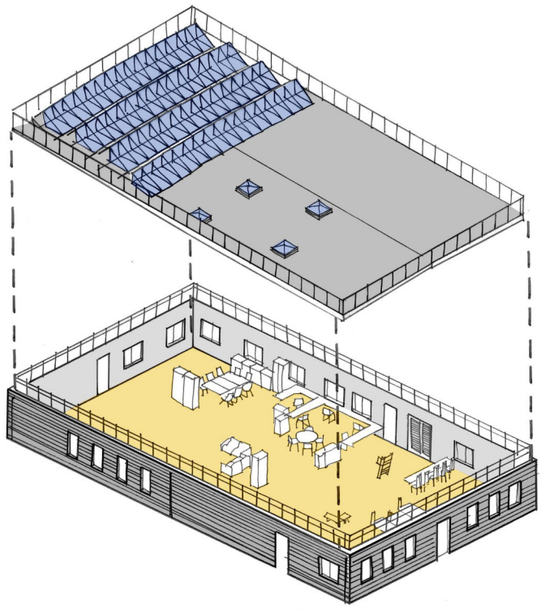


Figure 27 Office/welfare building development

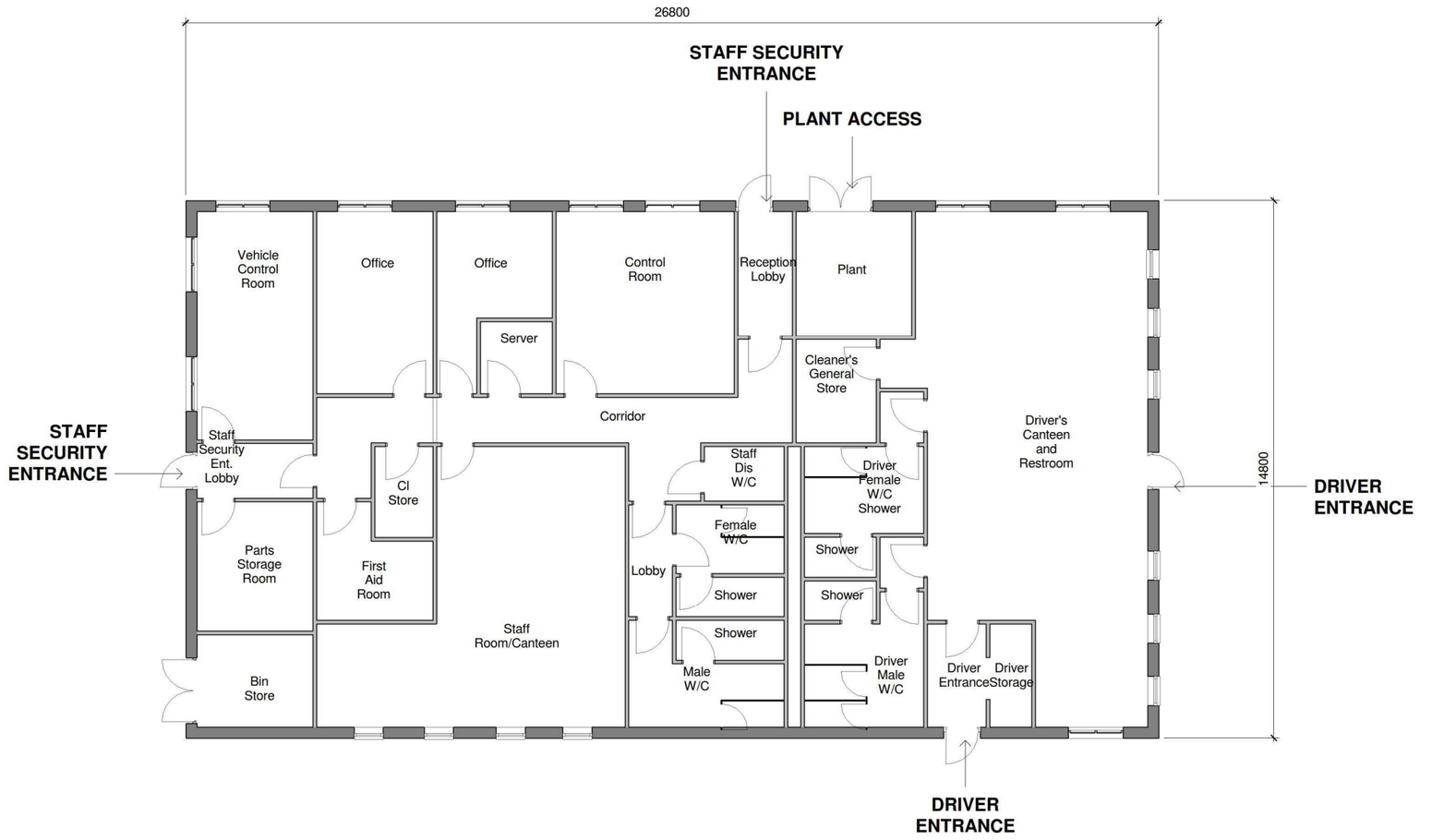


Figure 28 Ground floor plan

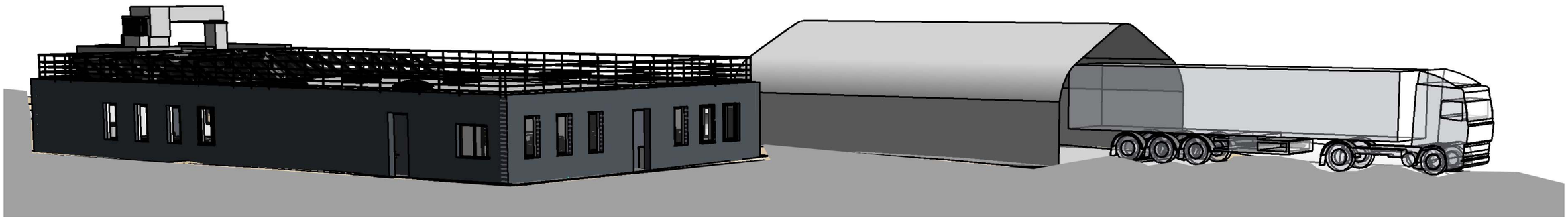


Figure 29 Office/welfare building viewed from the west

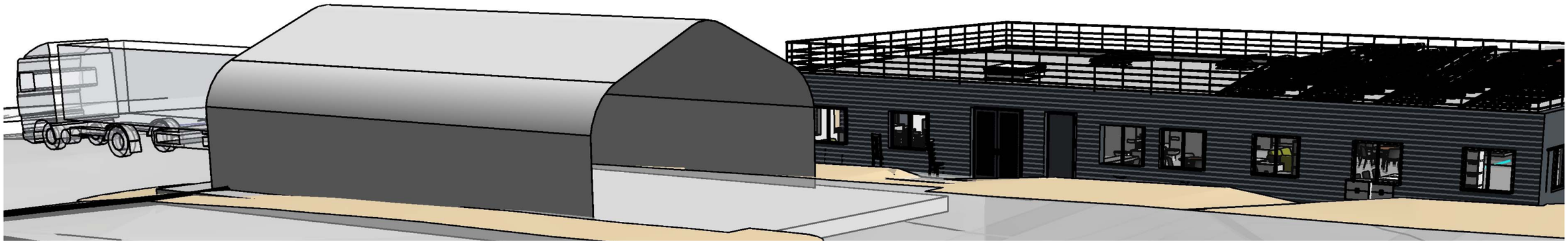


Figure 30 Office/welfare building viewed from the east

ELEVATIONS AND SECTIONS

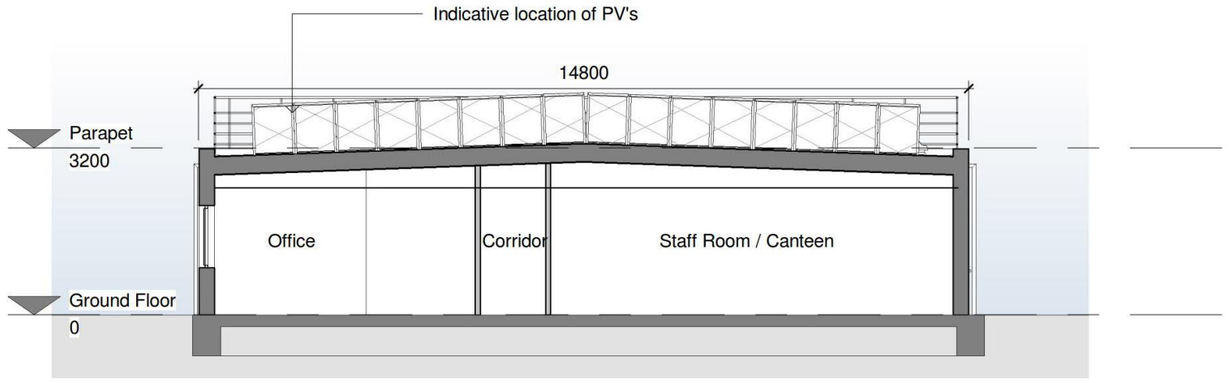
4.3.18. The design of the building has been considered in the context of its setting, on the site. The nature of the site requires a sensitive approach to the key buildings on the site. The proposed design, in its location, adheres to the following concepts:

1) **Reducing the site impact**. The building would use the contours and slope of the site to nestle in the surrounding landscape. The context has been carefully considered to reduce the visual impact and to shelter the buildings.

2) **Use of simple forms**. The building would use simple forms, providing an unobtrusive appearance on the skyline. Gently sloping roofs would be used for the larger footprint and long elevations.

3) **A simple and natural palette of materials and colours**. A limited palette of natural materials and neutral colours would be used to blend the building into its setting in the landscape.

4.3.19. Various elevations and sections are shown in figure 31 and figure 32.



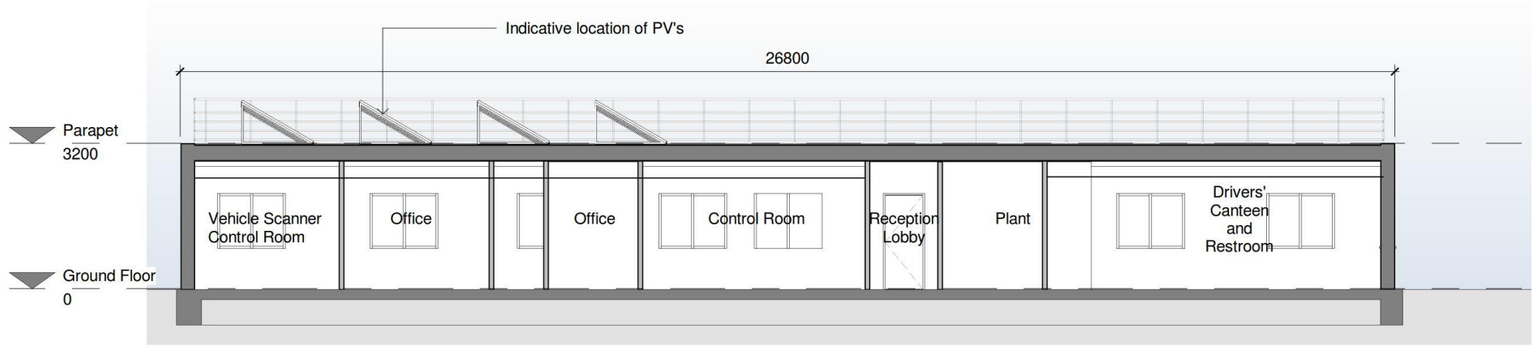
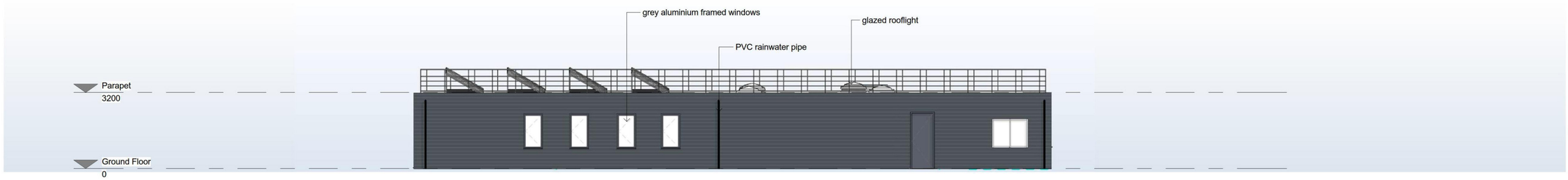
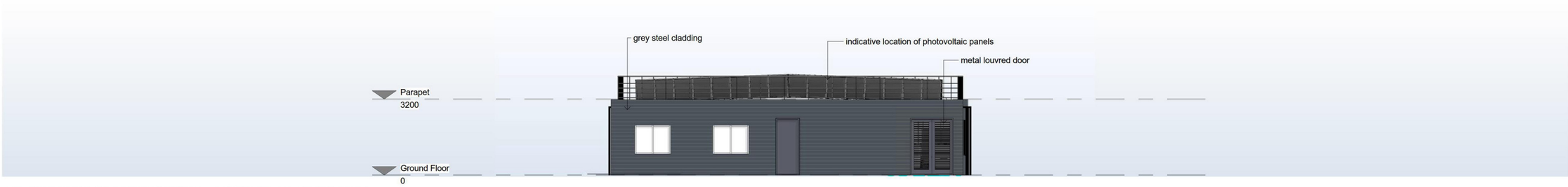


Figure 31 Office/welfare building sections

OFFICE/WELFARE BUILDING - NORTH ELEVATION



OFFICE/WELFARE BUILDING - EAST ELEVATION



OFFICE/WELFARE BUILDING - SOUTH ELEVATION

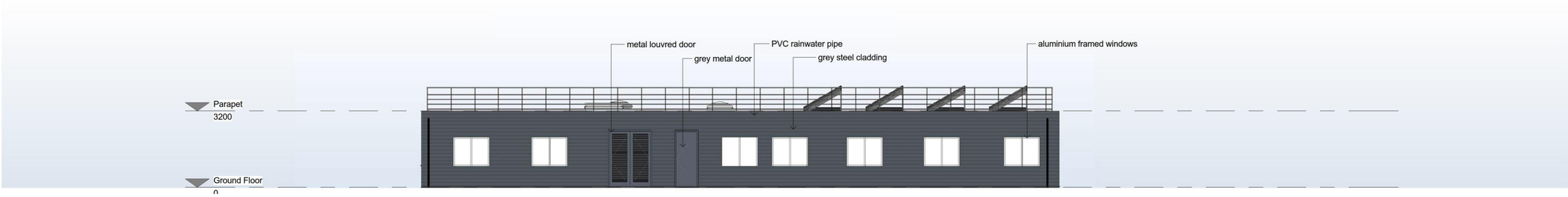


Figure 32 Office/welfare building elevations

INDICATIVE AREA SCHEDULE

4.3.20. Typical area allocations within the footprint for the office/welfare building are as follows, based on the described numbers of permanent staff and drivers and anticipated throughput of workers. These figures are subject to refinement within the overall envelope:

4.3.21. This information should be read in conjunction with section 3.3 and the DCO parameters tables.

Table 4 Office/welfare building area allowances

ITEM	AREA
Vehicle scanner control room	20.5m^2
Vehicle scanner parts storage room	20.5m^2
Meeting room	16m^2
Cleaners store	4m^2
First aid room	8.6m^2
Management office	12m^2
Server room	3.9m^2
Staff room/canteen	51m^2
Security control room	25m^2
Staff welfare (toilets and showers)	35m^2
Plant room	11m^2
General store	6.3m^2
Drivers' welfare (toilets and showers)	28m^2
Drivers' canteen/restroom	84m^2
Circulation (corridors, lobbies)	62.2m^2
Total building net internal footprint area	388m^2

EXTERNAL BUILDING MATERIALS

4.3.22. The semi-rural setting and temporary nature of the scheme dictates a sensitive response to the appearance and massing of the scheme. The finishes and cladding materials have been considered by the design team in relation to a series of considerations, which would apply to all the Associated Development for the Wylfa Newydd DCO Project.

4.3.23. The common types of finish / cladding have been assessed by the design team in relation to the considerations below, which are key for the operation of the facility.

- Appropriate presence in the landscape, located in its Welsh setting as part of the overall landscape strategy for the scheme.
- The facility is to be provided for the construction phase of the Power Station only; it is temporary and would be removed at the end of this phase and the land returned.
- A robust and low maintenance approach is adopted with consideration for life-cycle costs.
- A cost effective solution is required, that can be delivered quickly and effectively and removed at the end of its lifespan.

4.3.24. The proposed building materials palette is shown in figure 33.

Figure 33 Building materials palette

4.4 BUILDING SERVICES ENGINEERING PROPOSALS

GENERAL REQUIREMENTS

4.4.1. The general requirements for the mechanical and electrical building services installations will be in accordance with the latest applicable technical guides. The development will be required to pass Part L2A Building Regulations 2014 for Wales and will utilise a host of sustainable measures in order to do so.

4.4.2. The building design has been developed using both traditional and modular construction methods to assist with the speed of construction; utilising off-site manufacturing techniques to reduce the amount of on-site fabrication. The utilities capacities would be provided for full capacity in the initial phase.

INCOMING SERVICES

WATER

4.4.3. A new incoming cold water supply and fire main connection to the site would be taken from Welsh Water's existing infrastructure network as part of the site-wide infrastructure works. The point of connection/connections, confirmation of system pressure/capacity and details of any reinforcement requirements are to be developed with the site operations team.

ELECTRICITY

4.4.4. The new building would be provided with a new electrical supply. The supply would be taken from the existing low voltage (LV) network operated by SPEN, subject to available capacity in existing LV network.

4.4.5. The incoming electrical supply for the building would be metered. The point of connection would be the fence line of the site.

MECHANICAL SERVICES

4.4.6. Natural ventilation, in the form of openable windows/louvres, would be provided to serve the rooms where feasible.

4.4.7. For other rooms, mechanical ventilation would be provided via air handling units located within ceiling voids. These would generally consist of motorised dampers, panel/bag filters, supply and extract fans, and heat exchanger direct exchange (DX) or electric coils.

4.4.8. Heating and cooling would be provided by variable refrigerant flow (VRF) all-electric fan coil units.

4.4.9. VRF systems would generally comprise externally mounted air-cooled units and a number of internally mounted units linked with each other by refrigerant-carrying pipework and control cabling. The system would be capable of simultaneously heating and cooling via BC controllers (branch control) using only two refrigerant pipes to the indoor units. Pumped condensate drain would be used to take out the condensate liquid.

PUBLIC HEALTH SERVICES

4.4.10. The domestic hot and cold water services would run at high level through the ground floor to serve the toilets and other water users. The water services would be served directly from the Welsh Water mains network. The domestic hot water would be provided by local electrical point of use water heaters.

4.4.11. The whole system would comply with the requirements of BS EN 806 and BS 8558, the Water Supply (Water Fittings) Regulations 1999 and the latest guidance relating to minimising the risk of legionnaires' disease (Legionella).

EXTERNAL FIRE HYDRANTS

4.4.12. The site would be provided with a private fire main within the boundary of the site, adjacent to the access road, in accordance with BS 9990.

4.4.13. A separate unmetered underground fire main would be provided throughout the site to ensure an adequate capacity and coverage would be available using underground fire hydrants to BS 750.

ABOVE GROUND FOUL DRAINAGE SERVICES

4.4.14. A system of gravity soil and waste pipework would be installed within the new premises to convey the flow of foul water discharge from the toilets, wash hand basins, showers and sink units. It would connect to a new below-ground foul drainage network, which would ultimately discharge into the existing Parc Cybi foul drainage.

RAIN WATER SERVICES

4.4.15. A rain water drainage system connection would be provided for the office/welfare building and would drain into the new below-ground surface water drainage system. Refer to surface water drainage strategy in section 5.4 and figure 35.

ELECTRICAL SERVICES

4.4.16. The incoming electrical supply for the building would enter a new LV switch room situated on the ground floor. A new LV panel would be provided for the building. The LV panel would be wall/floor-standing and manufactured to meet British Standards.

4.4.17. A photovoltaic system is planned to be installed for the facility in accordance with building regulations requirements and Strategic Policies PS6 and PS7 and Policy ADN 2 in the JLDP. This would be in the form of a roof-mounted installation and connected to the main LV panel.

4.4.18. General lighting installation would be installed throughout the facility. It is intended generally that light emitting diode (LED) luminaires would be provided for the installation to meet the requirements of Part L of the Building Regulations.

4.4.19. The lighting system would generally be controlled via the use of lighting control modules which can be configured for a variety of control scenarios for different areas.

4.4.20. External lighting (e.g. in the parking areas) would be provided with power from a distribution board located within the main LV switch room.

4.4.21. An emergency lighting system would be installed in accordance with BS 5266-1 throughout the facility. Emergency luminaries would generally take the form of emergency versions of the general luminaires. Exit signs would be of the non-maintained type. Non-maintained emergency bulkheads would be installed outside each emergency exit from the building.

4.4.22. 'Small power' installation would be installed throughout the facility. The small power installation will be designed, installed, tested and commissioned in accordance with BS7671 IEE (Institution of Electrical Engineers) wiring regulations.

4.4.23. Vehicle charging points (slow charging) would be installed.

4.4.24. Suitable power supplies for the vehicle scanning facility would be installed.

4.4.25. A new fire alarm system would be provided throughout the facility. The category of coverage (as outlined in BS 5839-1) for the new fire alarm system would be L1. The fire alarm panel would be located in the main entrance to the Logistics Centre.

4.4.26. Lightning protection would comprise air terminations, roof tapes, down conductors and earth pits. Where possible, and in accordance with BS EN 62305, the building structure and fabric would be considered for use as an integral part of the lightning protection system. Consideration would be given to the use of structural steel columns for down conductors and metallic roof surfaces for air terminations. Particular consideration would be given to the thickness of any metallic roof structure and its suitability for use as an air termination conductor.

4.4.27. It is anticipated that the LV installation shall incorporate surge protection device/s which shall be co-ordinated with the lightning protection system in accordance with BS EN 62305.

ACOUSTICS

4.4.28. The ventilation strategy for the building would consist of a mixture of Mechanical Ventilation and Heat Recovery (MVHR), and natural (passive) ventilation plus air conditioning.

4.4.29. Walls between noise-sensitive spaces would be designed to achieve minimum weighted standardised level differences of varying standards, depending upon the noise levels generated in the source room, the sensitivity of the receiving rooms, and the privacy requirements of the receiving room.

4.4.30. Both the direct and flanking transmission paths would be considered in relation to the above. The specification of door sets would consider the potential for reducing the overall sound insulation performance of internal partitions. Acoustically rated door sets would be provided in critical situations e.g. between circulation spaces and offices.

4.4.31. Sufficient sound absorption would be provided in shared circulation spaces (corridors and hallways) in order to control reverberant noise, in accordance with Section 7 of Approved Document E of the Building Regulations. This would consist of a Class C acoustically absorptive ceiling for all entrance halls and corridors, and/or an equivalent absorption area of 0.25m2/m3 of volume in corridors and hallways.

4.4.32. Additional treatments would be provided in other specified rooms, such as carpets or alternative, soft-floor finishes in offices and medical treatment rooms and acoustic suspended ceilings in offices, medical treatment rooms, canteens and kitchens.

4.4.33. Mechanical services plant would be provided with suitable anti-vibration mounts where mounted to the modular steel structure. The air handling/heat recovery unit(s) would be of low-noise design. Limits on air-velocity would be adopted to control air-regenerated noise within the ducts.

FIRE STRATEGY

4.4.34. An analysis of the fire safety infrastructure has been undertaken. It is a legal requirement that the Wylfa Newydd DCO Project meets the functional requirements of the Building Regulations 2010. The building has been evaluated to meet 'Welsh' Approved Document B Volume 2:

- B1 Means of Warning and Escape:
  - The Parc Cybi site is considered as having areas within purpose groups 3, and 7(b).
  - Detection shall be provided to BS 5839-1:2013 Category L1 coverage.
  - Means of escape will be to 'Welsh' Approved Document B Volume 2.
  - The Logistics Centre is classified as purpose group 3; therefore, it does not require sprinkler systems under Welsh' Approved Document B Volume 2.
  - Natural ventilation is provided.
  - The maximum travel distance of 18m in one direction and 45m in two directions is achieved.
  - Escape lighting is to be provided in accordance with BS 5266-1.
- B2 Internal Fire Spread - Linings:
  - Linings shall comply with Appendix A of 'Welsh' Approved Document B Volume 2, and be Class 0 or 1 to BS 476 or similar.
- B3 Internal Fire Spread - Structure:
  - Fire performance of the structure will comply with Appendix A of 'Welsh' Approved Document B Volume 2.
  - Kitchenette and plant rooms shall all have one-hour fire rated separation.
- B4 External Fire Spread:
  - Distances to other buildings should meet the Code.
- B5 Access and Facilities for the Fire & Rescue Service:
  - Good fire tender access to all sides of the site.

4.4.35. The site would be provided with a private fire mains sourced from a dedicated supply, to feed fire hydrants located within 90m of the building entry point, and not more than 90m apart. Each fire hydrant shall be provided with an indicator plate in accordance with BS 3251.

4.5 EXTERNAL LIGHTING PROPOSALS

DESIGN PHILOSOPHY

4.5.1. The facility would be a 24-hour operational facility. The lighting requirement would vary at night for peak and off peak operations.

4.5.2. Designing to the maximum requirement would not be good practice and advances in controlling lighting have enabled an approach that is adaptive with consideration of the 2015 IACC SPG on Lighting and the emerging dark skies policy, while also ensuring that during the night the lighting would enable staff and workers to use the facility safely and securely.

4.5.3. Lighting has been designed to avoid/minimise any light spill onto adjacent buildings and onto any watercourse. There is a pond to the north of the site.

DESIGN ASSESSMENT

4.5.4. The lighting levels required for the facility are to be compliant in accordance with BS 5489-1:2013 – Code of practice for the design of road lighting.

4.5.5. The lighting design would focus on the following areas:

- all parking zones;
- access point; and
- internal road and inspection areas.

4.5.6. The design would work under the 'broad consideration' that the Isle of Anglesey is working towards a Dark Sky Reserve Status. As such:

- consideration would be given to the presence of existing road lighting;
- lighting design would be carefully planned to minimise light spill onto adjacent and environmentally sensitive areas, watercourses, hedgerows and other habitats; and
- the lighting would be zoned and dimmed to support the day-to-day operations of the facility.

4.5.7. Based on BS 5489-2013 Section 7.4.8.3 and the environmental zone classification of E2, consisting of rural surroundings with low district brightness as set out by the Institute of Lighting Professionals, the facility has been designed to light to various lighting standards depending on the area function. This is the minimum lighting level required. Luminaires would be required to have no tilt and be mounted on 8m and 12m columns. A LED light source has been specified with a colour temperature of 4000K.

4.5.8. The areas close to the inspection bay would have a higher lighting level at peak times. This is to ensure drivers are not dazzled when moving from parking to inspection bays. Once the peak period is complete the lighting would either be dimmed to match the parking levels or switched off if not required. Again LED lamps linked with sensors and zones allows for great flexibility of lighting and managed in a manor sympathetic to the environment and also covering safety requirements.

4.5.9. The parking and facilities lighting level would be dependent on predicted traffic volume and road speed. The parking and facilities area has been lit as per BS EN-12464-2 Section 5.9.2 which has an average of 10 lux with a uniformity of 25%.

4.5.10. The service road lighting level would be dependent on predicted traffic volume and road speed. The service road would be lit as per BS EN-12464-2 Ref 5.9.2 which has an average of 10 lux with a uniformity of 25%. Once the peak period is over the lighting would dim to match the parking area levels. The site entrance lighting level would be C5, this would help to make the junction more visible to vehicles. The entrance would be lit to an average of 7.5 lux with a uniformity of 40%.

4.5.11. A proposed lighting plan is shown in figure 34.

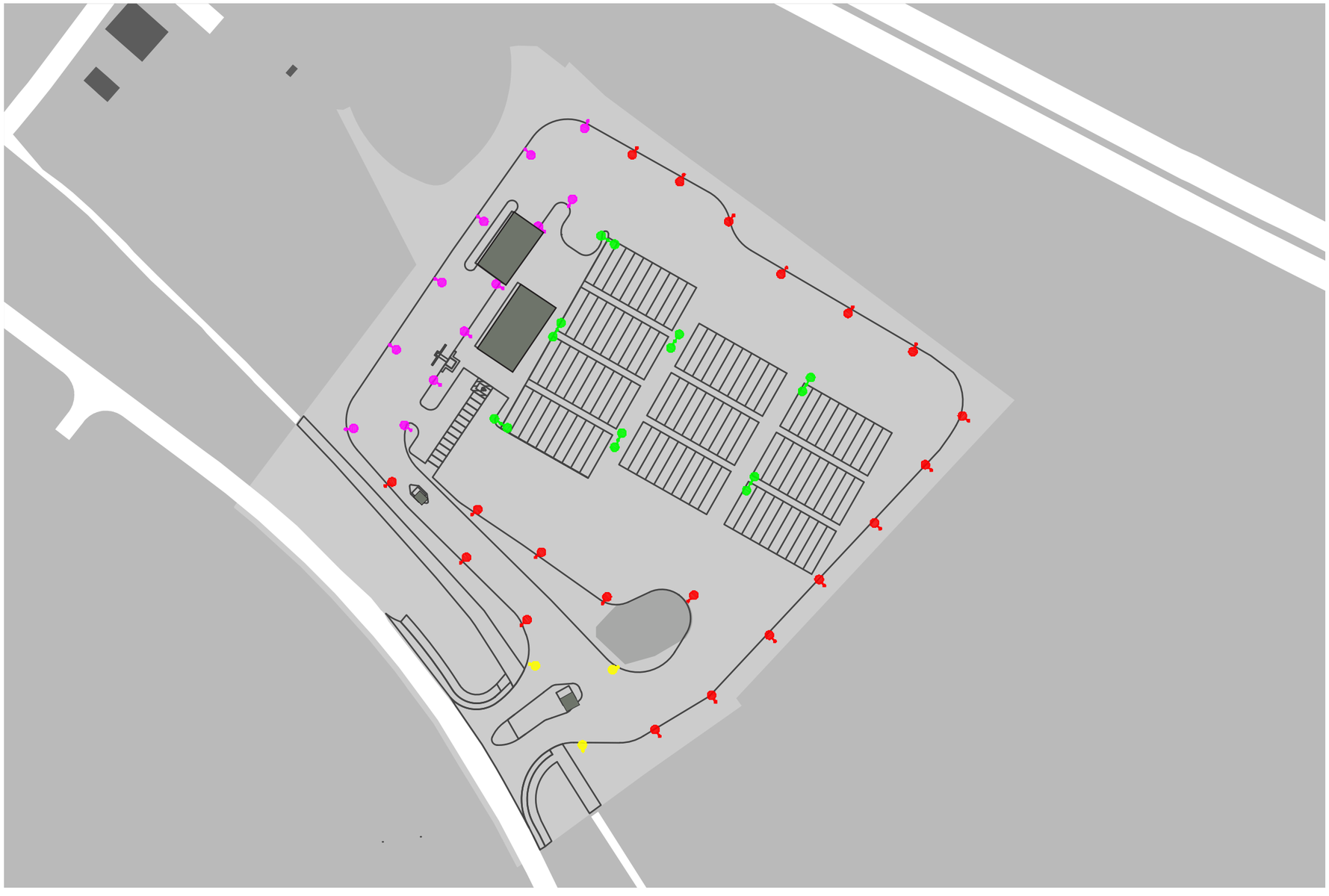


Figure 34 Lighting strategy

5 ENVIRONMENTAL SUSTAINABILITY

5.1 INTRODUCTION
5.2 ENERGY HIERARCHY
5.3 SUSTAINABLE DESIGN
5.4 WATER
5.5 SUSTAINABLE MATERIALS
5.6 NATURAL HABITATS
5.7 WASTE

Environmental sustainability

5.1 INTRODUCTION

5.1.1. Horizon is committed to the process for embedding consideration of sustainability going forwards by continuing to develop the structured exercise of identifying, capturing and documenting sustainable design opportunities and measures. This process fosters good sustainable design practices, relating to design decisions that are in the first instance practicable (i.e. cost effective), and demonstrate positive outcomes against Horizon's Sustainability Assessment's Objectives.

5.1.2. The overarching approach to sustainable design and construction of the Wylfa Newydd DCO Project is set out in Volume 1 of the DAS (Application Reference Number: 8.2.1) and in the Sustainability Statement submitted in support of this application (Application Reference Number: 8.17). This chapter outlines environmental sustainability measures that would specifically apply to the Logistics Centre element of the Wylfa Newydd DCO Project.

5.1.3. This chapter summarises how the design of the facility has taken into account sustainability during the design development process to date, with a view to passing Part L2A 2014 Building Regulations for Wales. Appendix 1-6 of Volume 3 of the DAS includes a review of sustainability guidance from national and local planning guidance, and identifies key sustainability themes. This chapter of the report describes how the development has incorporated good practice sustainable design measures in relation to each of these themes and includes recommended next steps to ensure that sustainability is embedded in the development going forward.

5.2 ENERGY HIERARCHY

5.2.1. A low energy design would be achieved by adopting the following hierarchy of strategic principles, ordered to represent their relative potential benefits both economic and practical.

A. MINIMISE USE

5.2.2. Internal temperatures – allow the internal temperature to vary according to external conditions.

5.2.3. Lighting – lighting levels have been considered and designed appropriately for the facility requirements. This includes an intelligent system which would reduce lighting levels when areas of the facility are not in use.

5.2.4. Building size has been designed appropriately to the minimum size requirements to reduce services demand.

5.2.5. Photovoltaics have been proposed which would reduce electricity demand on the local network.

B. REDUCE WASTE

INSULATION

5.2.6. Insulation optimised to reduce the heating and cooling requirement.

AIR TIGHTNESS

5.2.7. Build tight and ventilate right – the building would be well sealed using robust building details to ensure that the ventilation is controlled.

CONTROLS AND ZONING

5.2.8. The building would be zoned and the controls appropriate such that when areas of the building are not in use the services would be off.

PRE-FABRICATION

5.2.9. Pre-fabrication of the buildings is proposed to minimise waste on-site during construction.

C. RECYCLE

HEAT RECOVERY

5.2.10. Efficient heat reclaim systems have been considered for all mechanical ventilation systems.

5.2.11. Office/welfare building is proposed to be pre-fabricated. This could be re-used at the end of the operational life of the facility.

D. GENERATE

5.2.12. Renewable energy systems have been considered to reduce and offset the carbon impact of the development.

5.3 SUSTAINABLE DESIGN

GENERAL

5.3.1. The design has incorporated the following sustainability measures:

- identification and protection of existing environmental features where possible, including hedgerows, stonewalling and rock outcrop;
- efficient use of cut and fill; management of natural resources;
- designing out retaining walls in highways layout;
- reinforcement of plot boundaries for the buildings on existing physical features;
- use of Sustainable Urban Drainage Systems (SuDS) techniques; and
- use of sensitive cut-off lighting to minimise light spillage.

SITE ANALYSIS, LAYOUT AND PASSIVE DESIGN

5.3.2. A landscape constraints and opportunities mapping exercise was undertaken for the site taking into account key views, watercourses, existing vegetation types, landscape features, ecological features and access points. The scheme seeks to maximise the retention of key site features such as hedgerows and the rock outcrop, where possible.

5.3.3. It is proposed to locate the office/welfare building away from the sight lines between the standing stone and the Neolithic burial chamber.

5.3.4. The proposed site and building will be designed to blend in with the local landscape, for example the building facades would incorporate a palette of local/natural materials.

5.3.5. Generally, the glazing to solid wall ratio on the external facades is specified to allow reasonable levels of natural daylight whilst reducing unwanted heat loss.

ENERGY AND CARBON

5.3.6. The development is proposed to be constructed from pre-fabricated/flat pack components. Off-site construction can offer a number of benefits in terms of reducing energy use and carbon emissions including the following:

- design to meet and exceed latest standards for energy efficiency;
- due to minimal site deliveries, there can be significantly fewer vehicle movements on a modular building site than a traditional building project, reducing emissions associated with vehicle use;
- typically, less energy is required to produce a modular building than a traditionally constructed one; and
- off-site manufacture to tight tolerances can help create very airtight buildings, minimising draughts that reduce thermal efficiency.

5.3.7. The proposed design follows a 'fabric first' approach with low U-values and a high level of air tightness. The proposed building services include efficient gas boilers, heat pumps and photovoltaic panels.

5.3.8. The building services design proposals include energy sub-metering and monitoring for all major energy uses within the buildings. Any high load areas would also be sub-metered.

5.3.9. Highly efficient LED lighting is proposed for internal and external areas. External lighting would be controlled (e.g. photocell with time switch) to avoid operation during daylight hours.

5.3.10. It is proposed that a permanent power supply would be available on-site from the start of construction to enable construction site activities to be powered by grid electricity where feasible, thus providing energy and carbon savings compared with using electricity generated on-site through less efficient means e.g. diesel generators.

POLLUTION

5.3.11. The external lighting would be specified in accordance with the Institute of Lighting Practitioners guidance note for the reduction of obtrusive light which would ensure that external lighting is concentrated in appropriate areas and upwards light is minimised, reducing unnecessary light pollution, nuisance to neighbours and light spill onto ecologically sensitive areas.

5.3.12. The proposed heating source is electricity which has low NOx emissions at a local level thus providing a local air quality benefit.

5.3.13. The proposed design allows for the mitigation of watercourse pollution through the use of SuDS techniques, such as below-ground water retention, where feasible. Oil interceptors are proposed for areas where there is a higher risk of watercourse pollution such as the vehicle manoeuvring and delivery areas. All water pollution prevention systems would be designed and installed in accordance with the recommendations of Pollution Prevention Guideline 3 (PPG 3) and/or where applicable the SuDS manual (CIRIA, 2015).

FLOODING, SURFACE WATER RUNOFF AND CLIMATE RESILIENCE

5.3.14. The proposals for the development includes measures to minimise surface water runoff using sustainable drainage techniques, where feasible, including a best practice allowance for climate change based on the expected lifespan of the development.

5.3.15. Thermal modelling is proposed at the detailed design stage to identify any additional measures that may need to be included in the design to ensure that the facility is resilient to expected peak temperatures during the lifetime of the development.

5.3.16. The Logistics Centre site is identified as being within Flood Zone A by TAN15 development advice maps.

5.4 WATER

5.4.1. The water and drainage design aims to identify:

- the surface water drainage strategy including any discharge into local watercourses and preventing pollution;
- the foul drainage strategy including any wastewater treatment package plant requirements; and
- the potable water strategy.

5.4.2. The design proposals include water-efficient fittings such as low-flush toilets which help reduce water consumption. More detailed specifications will be developed at a later stage in the design process in accordance with recognised best practice for water efficiency.

5.4.3. The proposals also include water metering and monitoring. This would allow for more effective water monitoring and management during operation.

5.4.4. Proposals for the landscaped areas exclude the need for any dedicated mains-fed irrigation.

SURFACE WATER DRAINAGE REQUIREMENTS

5.4.5. A new surface water network is proposed to serve the site's drainage requirements, which include drainage of the all hardstanding areas. The proposed surface water network would be a piped system fed by site linear/gully drainage receptors. Storm water attenuation would be provided in line with the SuDS Manual C753 in the form of a modular below-ground geocellular storage system below the parking area.

5.4.6. The surface water strategy is visualised in figure 35.

5.4.7. Surface water flows would be discharged to the local Parc Cybi attenuation pond to the north-west of the site. Discharge flows would be limited to greenfield runoff rates via a flow control chamber.

FOUL WATER DRAINAGE REQUIREMENTS

5.4.8. The foul drainage would discharge into the Parc Cybi foul drainage network with the connection point to the north-west of the site.

POTABLE WATER REQUIREMENTS

5.4.9. The potable water supply would be taken from the existing main within the road running to the south of the site.

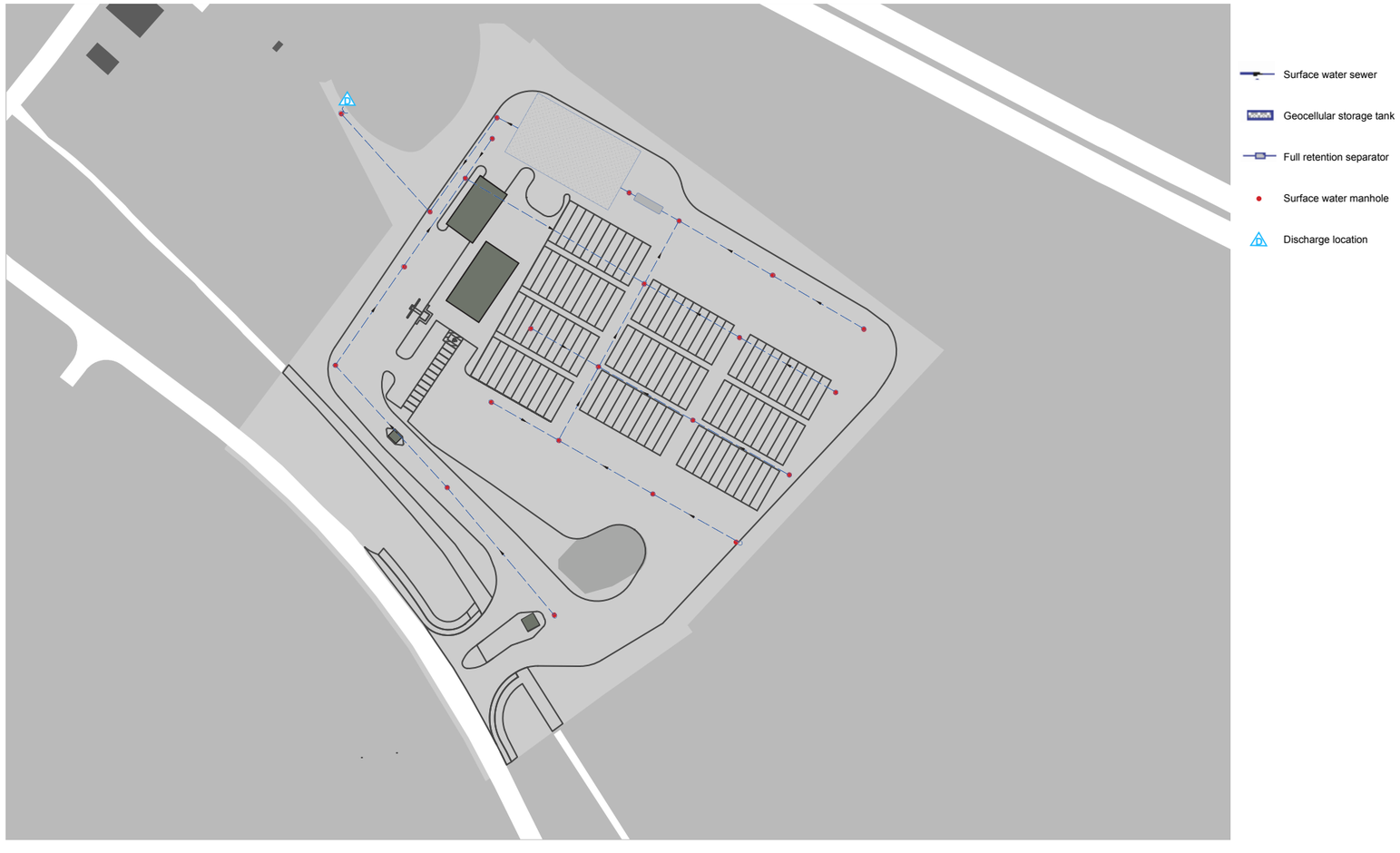


Figure 35 Surface water strategy

5.5 SUSTAINABLE MATERIALS

5.5.1. The proposals are designed to make efficient use of materials (e.g. off-site modular construction).

5.5.2. Preference would be given to the use of sustainable materials. It is anticipated that major building elements including external walls, roof, internal walls, floor finishes and insulation would be specified to achieve an A or A+ rating in the Green Guide to Specification (Bre, 2017).

5.5.3. During detailed design, the following sustainable material use measures would be reviewed and applied where feasible:

- the use of materials with recycled content;
- the use of materials with Environmental Product Declarations; and
- the use of responsibly sourced materials (e.g. BES 6001 certified, FSC timber).

5.6 NATURAL HABITATS

5.6.1. The development site has been surveyed by a suitably qualified ecologist to identify any features of ecological value and protection and mitigation measures required. The findings and recommendations have been incorporated in the landscape design where possible. This has been described in more detail in Section 4.2 Landscape proposals.

5.6.2. Existing features of ecological value including perimeter hedgerows, stone walling and rock outcrop would be protected, where possible, during the construction and operational periods.

5.7 WASTE

5.7.1. The waste disposal system would be designed to incorporate the following:

- a fully enclosed area set aside for the parking of commercial waste bins for paper, etc.;
- separate collection and storage for waste; and
- in the offices, central wastebaskets would be provided to separate recyclable waste at source.

5.7.2. The amount of cut and fill would be minimised to reduce the amount of waste removed from the site. Due to the existing fall of the site and the requirement of the facility to be relatively level, a significant amount of fill material would be required to raise the levels accordingly.

5.7.3. The office/welfare building proposals are based on the inclusion of off-site manufactured components. WRAP (Waste and Resources Action Programme) identifies that this construction method can support resource efficient construction thus reducing waste.

5.7.4. Consideration would be given to waste minimisation using Horizon's principles of waste hierarchy minimisation (in decreasing order of preference):

- Prevention and minimisation
- Preparing for re-use
- Recycling
- Other recovery
- Disposal.

6 COMMUNITY SAFETY

6.1 NATURAL SURVEILLANCE
6.2 COMMUNITY

Community safety

6.1 NATURAL SURVEILLANCE

MANAGEMENT REQUIREMENTS

6.1.1. The plan is for the facility to be managed by security personnel located in an office in the office/welfare building and for them to be present 24/7 during all hours of operation.

FENCING STRATEGY

6.1.2. To meet security requirements, a 2.4m high wired mesh / Paladin-type fence is proposed to the perimeter of the facility. Due to the existing topography and retained features (e.g. hedges, stone walling), it is generally proposed to locate these fences slightly inside the boundary at the top of any engineered slopes.

6.1.3. The entrance/exit would have secure gated access which would tie into the perimeter fence.

6.1.4. Figure 36 shows the security strategy including the fencing proposals.

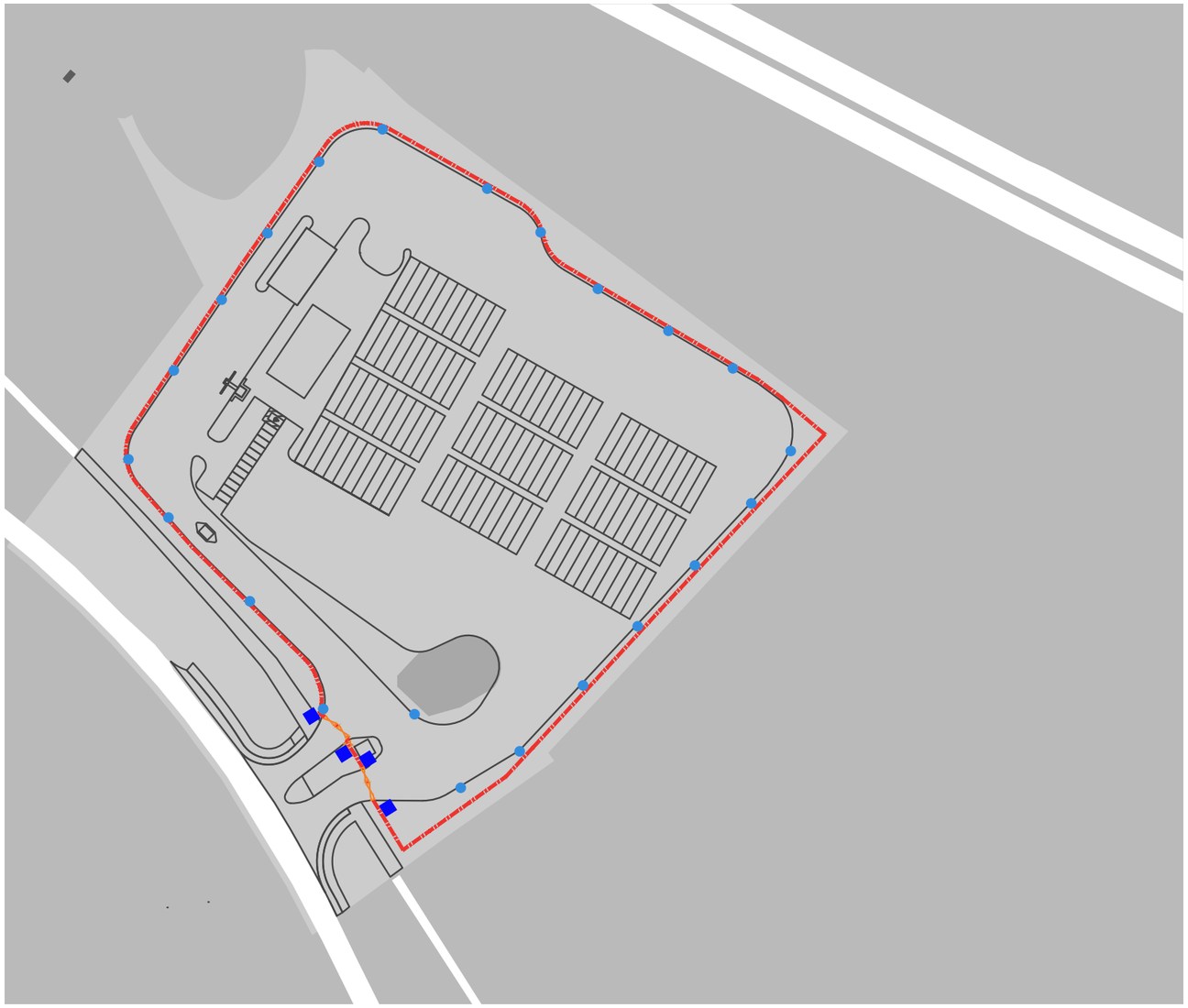


Figure 36 Security strategy

LIGHTING

6.1.5. Lighting would be provided within the boundary of the site and would generally be pole-mounted. Lighting levels would be intelligently controlled to allow for reduction and increases as circumstances require it.

6.1.6. During night operation, lighting would be generally restricted to the office/ welfare building and adjacent HGV parking area.

6.1.7. Notwithstanding, lighting to the search areas and inspection bays would need to achieve a uniform illuminance at a minimum of 150lux when operational. It may be switchable to reduce lighting levels when non-operational.

ACCESS BARRIERS AND CONTROL SYSTEMS

6.1.8. Controlled access barriers and automatic number plate recognition would be required at the entrance/exit to the facility.

CLOSED CIRCUIT TELEVISION (CCTV)

6.1.9. CCTV would be provided at strategic locations within the site.

- CCTV can be located on 6m or 8m high lighting columns or on 5m height camera columns (dependent on CCTV/lighting survey and design).
- All entrances to have automatic number plate recognition cameras (ANPR) with integral oversight cameras.
- All exits to be covered by CCTV for the purposes of identification.
- All exits to be covered by CCTV for the purposes of identification.
- Maintenance access required to all cameras, e.g. base pivot pole.
- Cameras on or around buildings locations omitted from figure for security purposes.

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SAFETY AND SECURITY

6.1.10. The design of the facility is proposed in accordance with Horizon's requirements. This allows for a low risk, safe and secure environment across the site. The following security provisions would be incorporated into the design:

- fencing would be provided to the entire perimeter;
- external lighting designed to BS5489;
- controlled and manned access barriers would be required to the entrance and exit to the site; and
- CCTV would be provided.

6.1.11. A review of best practice safe access requirements has been undertaken by the design team, this identified that the following measures to maximise pedestrian and cyclist safety have been included in the design:

- footpaths on-site would provide direct access from the site entrance to the building entrance;
- dedicated pedestrian crossings would be provided where pedestrian routes cross vehicle access routes;
- the lighting for access roads and pedestrian routes would be compliant with BS5489-1:2013 Lighting of roads and public amenity areas; and
- parking and turning areas would be designed for simple manoeuvring, thus avoiding the need for repeated shunting.

6.1.12. It is proposed to erect security fencing around the site establishment facility during the construction phase. All personnel working on the Wylfa Newydd DCO Project would have a site-specific safety induction prior to the issue of a security pass. A security facility would be provided at the entrance to the site. All vehicles and pedestrians accessing and leaving the site would be logged in and out. Visitors would be escorted at all times during their time on-site.

6.2 COMMUNITY

HEALTH, WELL-BEING AND SOCIAL ISSUES

6.2.1. The proposals include the provision of an external window to all offices, meeting rooms and canteen. This would provide a view out to allow occupants to refocus their eyes and enjoy an external view, thus reducing the risk of eyestrain and breaking the monotony of the indoor environment.

6.2.2. All regularly occupied spaces within the buildings are specified to be fitted with user operated glare control, such as blinds, to remove unwanted glare when required.

6.2.3. Ventilations rates for occupied spaces in the development would be specified to good practice standards.

6.2.4. Internal lighting would be designed to be in accordance with the Society of Light and Lighting (SLL) Code for Lighting 2012 to provide best practice lighting standards. External lighting would be designed in accordance with best practice standard BS 5489.

6.2.5. The design proposal allows for appropriate zoning of internal lighting to give building staff and building occupants (where applicable) a good level of control.

6.2.6. It is proposed that the construction contractor would be required to comply with the Considerate Constructors Scheme to minimise nuisance to the local community.

ADJACENCIES TO OTHER FACILITIES

6.2.7. There are a number of facilities located close to the site. These include existing out-of-town retail, logistics and industrial developments. Parc Cybi has outline planning permission for a number of commercial units.

7 ACCESSIBILITY

7.1 INCLUSIVITY ACCESS AUDIT
7.2 TRANSPORT AND ACCESS
7.3 ACCESS INTO THE SITE

Accessibility

7.1 INCLUSIVITY ACCESS AUDIT

7.1.1. An inclusivity access audit has been undertaken for the site.

7.1.2. It is intended that there should be no discrimination against any person wishing to work on the Wylfa Newydd DCO Project, either on a temporary or a permanent basis.

7.1.3. The site will be fully compliant with the recommendations of British Standard (BS) 8300 Design of buildings and their approaches to meet the needs of disabled people. Code of practice.

7.1.4. The proposals are deemed to be in accordance with the regulations regarding inclusivity with the inclusion of the following:

- access and security controls at the site entrances/exits;
- signage;
- confirmation of corridor widths in staff-only areas;
- car parking to include spaces for people with disabilities;
- refinement of the design of toilets and hygiene provision, including showers; and
- building management, including staff training, to cater for those with disabilities.

7.2 TRANSPORT AND ACCESS

7.2.1. The proposed Logistics Centre is a key component of Horizon's ITTS (Application Reference Number: 6.3.20) that would help to support the following:

- control of deliveries to the Wylfa Newydd Development Area;
- reduction in traffic and impacts to the local road network; and
- reduction in queues of vehicles entering the Wylfa Newydd Development Area.

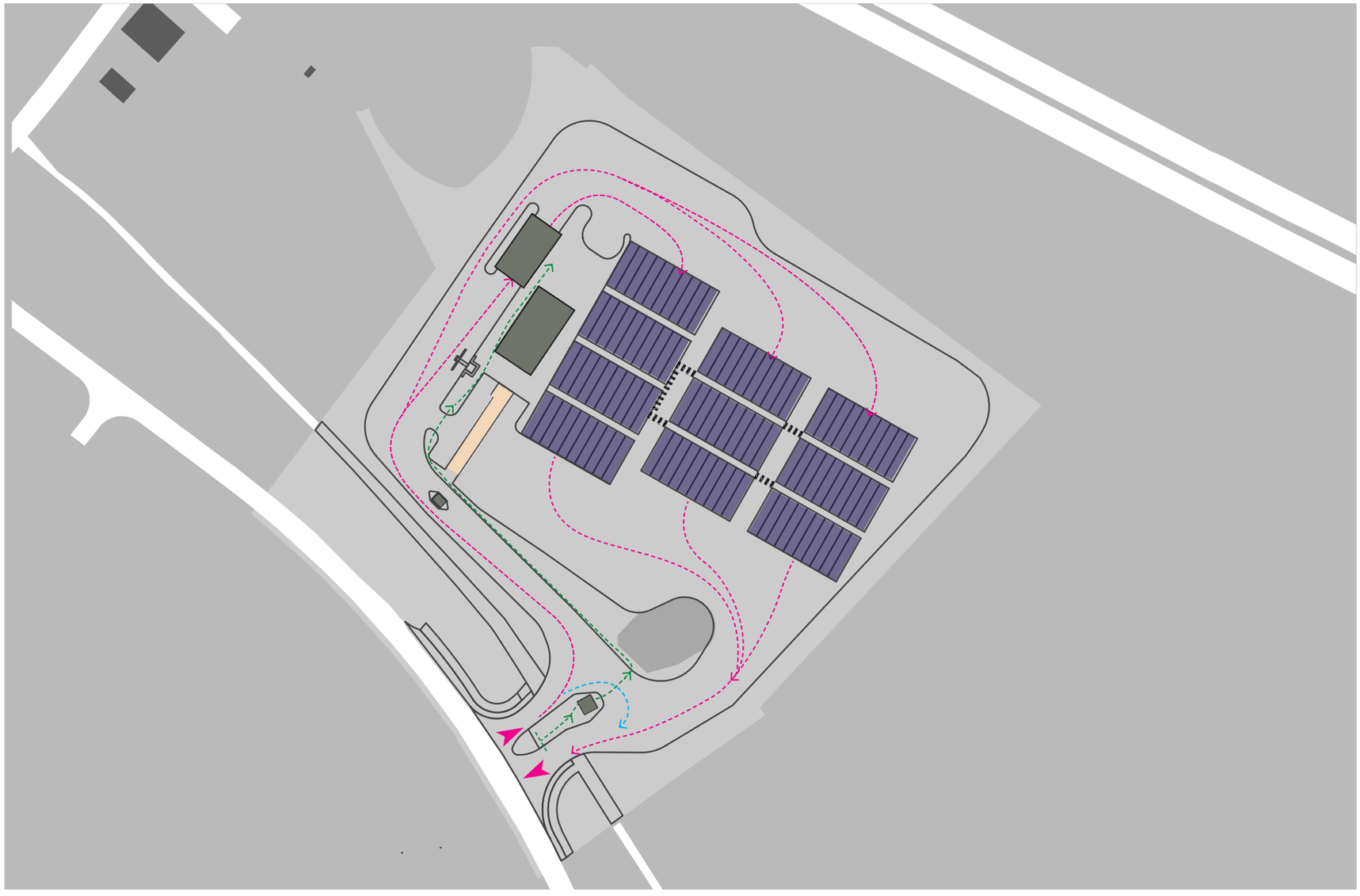
7.2.2. A green travel plan would be developed for the construction and the operational phase of this development thus helping to reduce transport-related impacts. Refer to chapter C2 of the Environmental Statement (Application Reference Number: 6.3.2) for further details.

7.3 ACCESS INTO THE SITE

7.3.1. Access to the Logistics Centre would be via a new entrance from an existing B-road to the south-west of the proposed site, approximately half a mile from an intersection with the A55. This is the only access point proposed for all vehicles, pedestrians and cyclists.

7.3.2. There is a cycle path running parallel to the B-road which would be adjacent to the south-western fence line. Highways improvements at the site entrance/exit would extend to this cycle path.

7.3.3. The accessibility strategy for the site is visualised in figure 37.



Legend

- Vehicle movement
- Safe pedestrian walking route
- Vehicle escape
- HGV parking bays
- Staff & accessibility parking bays
- Pedestrian crossing
- Vehicle access/egress

Figure 37 Accessibility strategy

8 MOVEMENT

8.1 GENERAL
8.2 TRANSPORT AND TRAVEL
8.3 CAR PARKING
8.4 HIGHWAYS

Movement

8.1 GENERAL

8.1.1. Figure 37, in the previous chapter, shows indicative vehicle and pedestrian movements associated with this facility as well as entrances and exits for vehicles and pedestrians.

STAFF VEHICULAR ACCESS

8.1.2. Workers driving to the facility would enter through the main entrance, proceed past both kiosks and then park in the staff car park. Persons would then walk along one of the designated pedestrian routes to the office/welfare building.

8.1.3. Leaving the site, vehicles would proceed into the region where HGVs would be exiting, and would drive around to the site exit and out onto the B-road. The car parking layout ensures reverse-parking of cars is not required.

HGVS

8.1.4. HGVs driving to the facility would enter through the main entrance. In the event the HGV is not to be admitted, it may turn around via the HGV escape space designated, around the entrance security kiosk, and directly out through the site exit.

8.1.5. If accepted, the HGV would proceed along the internal access road to the information kiosk. At this point, the vehicle would be directed to proceed either to a parking slot or to the vehicle inspection area.

8.1.6. HGV drivers would proceed on foot via designated pedestrian routes to the office/welfare building.

8.1.7. Leaving the facility, the HGV would proceed around to the site exit and out onto the B-road. The HGV would proceed to Junction 2 of the A55, continue to Junction 4 and then pick up the A5025 to the Wylfa Newydd Development Area.

DELIVERIES

8.1.8. Vehicles undertaking deliveries of day-to-day consumables and/or facilities management would enter the site through the main entrance, and on acceptance, proceed past both kiosks, past the vehicle inspection area and would stop in a lay-by adjacent to the office/welfare building. The lay-by has been designed to ensure reverse-parking of vehicles is not required and that they have sufficient space to ensure unloading occurs away from any HGV parking.

8.1.9. These vehicles would exit in the same manner as an HGV.

PEDESTRIANS AND CYCLISTS

8.1.10. Pedestrians and cyclists would enter the site through the main entrance. Cyclists would be encouraged to dismount and use the pedestrian route so as to avoid conflict with HGVs. Pedestrians would take a designated path past the first security kiosk between the entrance and exit roads, past the staff car park and into the office/welfare building.

8.2 TRANSPORT AND TRAVEL

8.2.1. A multi-modal approach to the Traffic and Transport Assessment has been adopted to assist in designing the development to provide suitable facilities and infrastructure that could encourage travel by sustainable modes to minimise the impact of travel demand on both the local and strategic transport network. This includes assessment of transport-related effects both on-site and off-site, in particular consideration of the operation of junctions and provision for access to bus services and the cycle network.

8.2.2. For further details, please refer to the Traffic Assessment in chapter C2 of the Environmental Statement (Application Reference Number: 6.3.2).

8.3 CAR PARKING

8.3.1. Provision is provided at the Logistics Centre for:

- 100 HGV spaces; and
- 13 staff vehicle parking spaces including one disabled space.

8.4 HIGHWAYS

DESIGN PHILOSOPHY

8.4.1. The facility is situated on the Parc Cybi Industrial Estate at Holyhead south of the A55 at Junction 2, within a 30mph speed limit zone. The site is situated to the north of the existing link road between two roundabouts. The site is set back from this link road. The link road has a segregated footway/cycleway adjacent to the carriageway. The highway boundary to the link road is defined by an existing dry stone wall. Between the Parc Cybi link road and the site runs the Lôn Trefignath highway bordered by two dry stone walls; the northernmost wall forms the boundary to the site.

8.4.2. The site provides parking for up to 100 HGVs at any one time. Anticipated arrival rates combined with inspection requirements could generate a small number of queuing HGVs. The access road allows for a minimum of eight HGVs to queue within the site and thus prevent queuing on the B-road.

THE DESIGN SOLUTION

8.4.3. Access to the site would be moved further east to maximise space for queuing HGVs and minimise the impact of the rock outcrop on the site. The existing site entrance would be removed and replaced with the entrance at its new location. The access would cross the link road footway/cycleway and the Trefignath Way. To avoid these crossing the access at different locations, the footway/cycleway would link into the Trefignath Way either side of the access with one crossing point.

8.4.4. A security kiosk would be positioned just within the site between the entrance and exit lanes. An area behind the kiosk would allow vehicles to be rejected from the site without the need to circulate around the site. This access would also serve as a cyclist/pedestrian entrance. The pedestrian route would cross this area from the kiosk to the rock outcrop and arrive at the vehicle free area. Pedestrians would then proceed along the vehicle free zone only crossing a vehicle route at the staff car park entrance en-route to the building.

8.4.5. The access has been auto-tracked for HGV movements and also with a rescue vehicle towing a broken down HGV off-site to a repair facility. There is a track around the outside of the site which is accessed from the link road immediately south of the site entrance which would also cross both footway/cycleway.

8.4.6. The link road has a 30mph speed limit and the 90m visibility envelope is achieved without the need for additional measures or deviation from standards. The existing roundabout on the approach to the site is 225m from the site entrance and the other existing roundabout on the link road is 100m past the site entrance. There is an access to a further development to the west on the opposite side of the link road is 150m from the site entrance.

9 POST-OPERATION

9.1 POST-OPERATION STRATEGY

Post-operation

9.1 POST-OPERATION STRATEGY

9.1.1. As explained in Volume 1, the Wylfa Newydd DCO Project will represent a significant investment and play a vital role in meeting the challenge of maintaining secure energy supplies in the UK. It will also deliver long-term employment growth, attracting and developing a skilled workforce equipped to support future projects and initiatives throughout North Wales.

9.1.2. It is important to identify how each component of the Wylfa Newydd DCO Project will be managed and used following their operational stage, whilst recognising that the DCO itself cannot give approval for post-operational uses. For the Associated Development sites, strategies are required to deliver a lasting legacy and/or restore the sites to an appropriate state.

9.1.3. The Logistics Centre would be operational for a maximum of 10 years, only for the duration of the construction of the Power Station. At the end of the construction period, the Logistics Centre would be made available for an alternative, either in connection with the Wylfa Newydd DCO Project or another appropriate employment use. If further planning permission is required for any external changes or other material change of use, then this would be applied for at the time.

9.1.4. The post-operation strategy reflects the stage in the site's evolution and it future role in the Parc Cybi development. All scanning and inspection equipment, kiosks and office/welfare building would be removed by Horizon on completion of the construction of the new Power Station. What would remain on-site would be the hard finishes i.e. vehicle and pedestrian surfaces and the boundary treatments: stone walling and hedging.

A APPENDIX A

FACILITY ENVIRONMENTAL DESIGN OBJECTIVES

This appendix sets out the EDOs that were developed, with regard to the site constraints as set out in chapter 2 of this document, to inform the facility design and landscape principles. The third column provides an illustration of how each EDO could be met through the design process, as demonstrated in the design provided in Part B of this document.

REF.	OBJECTIVE	HOW IT MAY BE MET IN THE DESIGN PROPOSALS
EDO1	Design to retain and restore existing stone walls where possible.	Existing stone wall to front of the site is to be retained in the design except where new vehicle entrances are required.
EDO2	Existing woodland, scrub, marshy grassland and hedgerows to be retained and reinforced where possible to screen potential views of the site and integrate the site with the surrounding landscape.	Existing vegetation to boundaries proposed to be retained as part of the design.
EDO3	Exposed rock to be retained and integrated into the site design where possible.	The existing rock outcrop to the south-east of the site is proposed to generally be retained. Most of the surface level bedrock would be removed as part of the works to allow the facility to be constructed.
EDO4	Design to retain existing wetland features and watercourses where possible, ensuring associated wetland grasses and ecology are retained for ecological and amenity value.	Surrounding wetland features and watercourses are to be retained.
EDO5	Design to consider the potential to plant woodland/scrub beyond the red line boundary to reinforce and enhance the existing woodland and pond, and screen potential views into the site.	Design proposed to retain vegetation to boundaries of the site, where possible. No work is proposed outside the site boundary other than drainage connections and new entrance off the existing highway.
EDO6	Design to maintain view between Neolithic burial chamber and standing stones across the southern corner of the site.	Design maintains this view. Building and inspection tent are located outside this sight line.
EDO7	Design to retain existing cycle way and integrate it into the development.	Design retains existing cycle way.
EDO8	Design to retain/restore existing hedgerows to site boundaries, with root protection zones being taken into consideration.	Design proposed to retain hedgerows to the boundaries of the site where possible.
EDO9	Design to consider sustainable re-use for any excavated aggregates.	Excavated rock could be re-used as fill material if appropriately tested.
EDO10	Design to consider beneficial re-use for any natural soils that have to be removed from site.	Excavated subsoil could be used for the small areas of soft landscaping proposed. It is expected that the majority of topsoil and subsoil would have to be removed from site.
EDO11	Design to ensure layout considers noise sources and receptors. This could include, but not be limited to, maximising distances between source and receptor, orientation of buildings and/or ensuring sufficient space to accommodate noise barriers or enclosing features generating noise sources.	This is a proposed HGV facility with the majority of noise generated by the vehicles themselves.
EDO12	Design to comply with Technical Advice Note 15: Development and Flood Risk (Welsh Assembly Government, 2004).	Design to comply with this Technical Advice Note.
EDO13	Design to ensure, wherever possible, lighting design avoids light spill onto boundary habitats.	8m, 10m and 12m high lighting poles are required to meet facility requirements. Intelligent lighting systems will be used that enables lighting levels to be reduced or switched off when not required.
EDO14	Design to re-use site soil as far as practicable, to minimise requirements for off-site disposal.	Excavated subsoil could be used for the small areas of soft landscaping proposed. It is expected that the majority of topsoil and subsoil would have to be removed from site.
EDO15	Design to avoid any effect on the off-site attenuation pond, which may contain protected species.	Surface water drainage design connects to the attenuation pond in accordance with outline planning permission. Attenuation pond that serves the A55 to the north of the site is not directly impacted by the works.
EDO16	Design to include mitigation for potential effects on protected species, if present.	Not aware of any protected species being present on the site.
EDO17	Design to minimise, as far as possible, the area of site to be covered by hardstanding in order to reduce the effects on soil resources.	This is a proposed HGV facility and therefore the majority of the site is covered in hardstanding.
EDO18	Design to minimise as far as possible the generation of waste that needs to be disposed of off-site.	Design minimises the generation of waste as far as possible. A significant amount of fill is required.
EDO19	Design to avoid, if possible, any ground disturbance within the area identified to be of high archaeological potential. If this is not possible, a programme of archaeological evaluation in the form of trial trenching would be required to determine the extent and nature of any buried archaeological remains.	Building is located away from these two areas. Hardstanding is required in both these areas to service the site. The majority of the rock outcrop is retained.

B APPENDIX B

MEETING THE DESIGN PRINCIPLES

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE DESIGN PROPOSALS	'GOOD DESIGN' THEME
Key design principles			
3.4.8	The site will be arranged to allow for efficient circulation on the site, minimise unnecessary vehicle flows and create efficient logistics vehicle inspection and storage.	For safe movement around the site, the masterplan (figure 19) and accessibility strategy (figure 37) indicate a one-way system for HGVs throughout the facility.	Functionality
3.4.9	Buildings (with the exception of the security kiosk and driver instruction point) and the HGV parking area will be sited to the north half of the Logistics Centre site to maintain the sight line between the Ty Mawr Standing Stone and the Trefignath Burial Chamber Scheduled Monuments.	The design does not incorporate any other buildings or HGV parking in this sight line between the monuments. The kiosks and entrance road are in this sight line, but are low-level small buildings.	Functionality Character Mitigation
3.4.10	The architectural design will use simple building forms to recognise the function of the facility whilst still complementing its surroundings and integrating with the landscape.	The office/welfare building has been designed as a simple shape, optimised for the intended number of users and function. Refer to section 4.3 Architectural building design proposals.	Appearance Character
3.4.11	Hard and soft landscaping will be used to help integrate the Logistics Centre appropriately into the surrounding landscape.	Soft landscaping has been achieved at the boundaries. Some of the existing rock outcrop has been retained. Refer to figure 19 Landscape masterplan and general arrangement. Different surfaces for vehicle and pedestrian zones is proposed to break up the area of hardstanding, refer to figure 23 Material strategy.	Character Mitigation
3.4.12	All buildings and structures will be removed following the operational period of the Logistics Centre to reinstate an open view between the Ty Mawr Standing Stone and the Trefignath Burial Chamber Scheduled Monuments.	This is intended as part of the restoration plan.	Character Adaptability
3.4.13	A low energy design will generally be adopted, based on the hierarchy of minimising use, reducing waste, recycling and on-site generation.	Refer to sections 5.1, 5.2 and 5.3 for sustainability proposals. The building design and construction would embody sustainability principles. Waste and recycling would be appropriately managed.	Sustainability Mitigation
Masterplanning principles			
3.4.14	The design of the Logistics Centre will provide space within the site boundary for up to eight HGVs to queue at any time prior to entry through the security kiosks of the site, to prevent any queuing on Parc Cybi Road.	The design includes a section of road within the site for up to eight HGVs to queue safely within the site.	Functionality Mitigation
3.4.15	The site will be arranged to allow for efficient circulation on the site, minimise unnecessary vehicle flows and create efficient logistics vehicle storage.	For safe egress with the site, the masterplan (figure 19) and accessibility strategy (figure 37) indicate a one-way movement for HGVs throughout the facility.	Functionality
3.4.16	HGV parking bays will be arranged in rows. Allocation of vehicles to rows will be controlled to ensure vehicles can be accessed at their allotted times (reducing need for HGVs to reverse). Vehicles will be despatched in a controlled fashion to the Wylfa Newydd Development Area.	HGVs would arrive and be allocated a parking bay before they proceed to the Wylfa Newydd Development Area, as part of safe and efficient traffic management.	Functionality Mitigation
3.4.17	Buildings will be as small as reasonably practicable within operational requirements.	The office/welfare building has been optimised in size for the number of users and its functions. Refer to figure 28 Ground floor plan.	Functionality Appearance
3.4.18	The design will minimise harm to the setting of, and retain intervisibility between the Ty Mawr Standing Stone and the Trefignath Burial Chamber Scheduled Monuments, as far as reasonably practicable within security and operational requirements.	The design does not incorporate any buildings or HGV parking in this sight line, thus maintaining the quality and character of the area. The kiosks and entrance road are in this sight line, but are low-level small buildings.	Character Mitigation
3.4.19	The proposed access point will accommodate the Lôn Trefignath Cycle Path and the existing dual use cycleway/footway. A zebra crossing will be provided across the site access and egress.	The cycle path has been incorporated into the site layout, preserving the quality of the area, with a single crossing point, with zebra crossings across the entrance road. Refer to figure 19 Landscape masterplan and general arrangement.	Functionality Mitigation
3.4.20	Site security and a secure fenced boundary will be incorporated into the design of the Logistics Centre to ensure the safe and secure operation of the facility and deter crime.	To ensure a safe and secure site, 2.4m Paladin-type fencing is proposed around the functional site, with CCTV cameras attached to lighting columns around this perimeter. ANPR is proposed for the entrance and exit. Refer to figure 36 Security strategy.	Functionality
3.4.21	The kiosks will be provided at the entrance and exit barriers to allow the manual operation of these barriers and to assist with the turnaround process if necessary.	An information point and security kiosk have been included in the design as part of the traffic management. Refer to figure 19 Landscape masterplan and general arrangement.	Functionality
Building design principles			
3.4.22	The architectural design of proposed buildings and structures will use simple building forms to recognise the function of the facility and its industrial location, whilst still complementing its surroundings and integrating with the landscape and reducing adverse visual effects.	The office/welfare building has been designed as a simple shape, optimised for the intended number of users and function. A simple, visually recessive palette of finishes is proposed. Refer to section 4.3 Architectural building design proposals.	Functionality Appearance Mitigation

REF.	DESIGN PRINCIPLE	HOW IT MAY BE MET IN THE DESIGN PROPOSALS	'GOOD DESIGN' THEME
3.4.23	The number, massing and siting of buildings which comprise the Logistics Centre will serve to reduce the impact on the Scheduled Monuments, as far as reasonably practicable within security and operational requirements.	A minimum number of structures has been incorporated into the design to meet the facility's functional needs.	Functionality Mitigation
3.4.24	Use of low-level structures with neutral colours for the logistics offices and vehicle inspection facility.	The office/welfare building and inspection tent are proposed to be single-storey structures.	Functionality Appearance
3.4.25	External window will be provided to all offices, meeting rooms and the canteen.	This has been proposed in order to provide quality internal spaces, refer to figure 28 Ground floor plan.	Functionality Sustainability
Landscape design principles			
3.4.26	There will be hedgerow planting to the north of the Logistics Centre site to reinforce and enhance existing hedgerows.	Hedgerow planting/retention in line with local character is proposed along the south-eastern boundary (refer to figure 19 Landscape masterplan and general arrangement).	Character
3.4.27	Hard and soft landscaping will be used to help integrate the Logistics Centre appropriately into the surrounding landscape. Where practicable, existing hedgerows and stone walls will be retained and enhanced to define and reinforce the boundaries of the site.	Soft landscaping in line with local character has been achieved at the boundaries. Some of the existing rock outcrop has been retained. Refer to figure 19 Landscape masterplan and general arrangement. Different surfaces for vehicle and pedestrian zones is proposed to break up the area of hardstanding, refer to figure 23 Material strategy.	Character
3.4.28	The section of wall, which forms a boundary between the Lôn Trefignath and the site will be demolished in order to provide a new site access, the existing site entrance will be stopped up and a wall constructed alongside the Lôn Trefignath Cycle Path.	This is proposed in the landscape scheme, in keeping with the landscape character.	Character
3.4.29	The existing stone wall to the south-west of the Logistics Centre site will be restored.	This is proposed in the landscape scheme, in keeping with the landscape character.	Character
3.4.30	Any soft landscaping areas will be seeded with appropriate grassland species to help integrate the site into the surrounding landscape.	This has been achieved per figure 19 Landscape masterplan and general arrangement.	Character
3.4.31	Closed circuit television (CCTV) will be provided at strategic locations within the site.	To provide a safe and secure site, this has been proposed on lighting columns about the fence line (refer to figure 36 Security strategy).	Functionality
Sustainability principles			
3.4.32	The Logistics Centre will include water-efficient fittings which help reduce water consumption.	Low-flush toilets would be specified.	Functionality Sustainability
3.4.33	As far as practicable, the lighting design for the site will mitigate the spill into adjacent habitats, and employ a control system which only illuminates those areas where activities are occurring.	This is achieved on the lighting layout and through use of intelligent lighting control so as not to illuminate when not needed.	Functionality Sustainability Mitigation
3.4.34	The drainage design will include measures to attenuate all surface water runoff and prevent changes in water quality and quantity affecting aquatic habitats by provision of an oil/water interceptor. Drainage will be designed to mitigate any significant effects on the attenuation pond.	Surface water drainage of hardstanding areas would be a piped system fed by linear/gulley drainage receptors. There would be a modular below-ground geocellular storage system below the parking area. Refer to section 5.4 and figure 35 Surface water strategy.	Sustainability Mitigation
3.4.35	All surface water runoff will be passed through an oil/water interceptor on the drainage outfall before passing through a below-ground geocellular attenuation tank. The vehicle hardstanding will be constructed using impermeable paving. and surface runoff will be routed through a below-ground geocellular storage system. The maximum discharge will be attenuated to meet the criteria used for the design of the existing retention pond into which the surface water will be discharged.	This is proposed in the management of surface water runoff, per section 5.4.	Sustainability Mitigation

C APPENDIX C

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WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Design and Access Statement Volume 3

Appendix 1-5 A5025 Off-line Highway Improvements

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PART A: CONTEXT AND PRINCIPLES

1 INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT
1.2 GENERAL CONTEXT
1.3 STRUCTURE OF THIS DOCUMENT
1.4 DESCRIPTION OF THE PROPOSED DEVELOPMENT
1.5 STRATEGIC DESIGN BRIEF

Introduction

1.1 PURPOSE OF THE DOCUMENT

1.1.1 This Design and Access Statement sets out the process of design evolution for the proposed A5025 Off-line Highway Improvements.

1.1.2 As noted in Volume 1 [APP-407], Horizon has submitted detailed design drawings for approval and on an illustrative basis as part of its DCO Application. Illustrative drawings have been submitted in respect of the viaduct, over-bridges, culvert and associated underpasses comprised in Works No. 9 to 11 (sections 5 to 7) in Schedule 1 of the Order.

1.1.3 In respect of these illustrative proposals, the DCO Requirements provide that Horizon will be required to prepare and submit detailed design drawings for approval by the relevant planning authority, prior to the construction of these structures. These detailed designs must be prepared in accordance with:

- the design principles in this document;
- the maximum and minimum parameters for those structures in the DCO Requirements; and
- the limits of deviation specified for those works set out in article 4 of the Order.

1.1.4 Once approved (either through the Order or by the relevant planning authority pursuant to a DCO Requirement), Horizon must undertake construction of the A5025 Off-line Highway Improvements in accordance with the approved designs. However, in order to preserve flexibility, Horizon may seek approval to submit revised plans provided such plans are in accordance with the matters listed above in paragraph 1.1.3. Where a revised plan is approved, Horizon must undertake construction in accordance with the approved plan.

1.1.5 The design process explained in this document has informed the development of both the approved and illustrative plans submitted as part of the DCO Application.

1.1.6 This document forms part of Volume 3 of the DAS, which is structured as follows:

- Volume 1 provides an overview of the entire Wylfa Newydd DCO Project including the Associated Development;
- Volume 2 relates to the Power Station Site and Wylfa Newydd Development Area; and
- Volume 3 relates to the Off-site Power Station Facilities and Associated Development, including the Site Campus, Logistics Centre, Park and Ride facility and Off-line Highway Improvements.

1.1.7 The DAS forms part of a suite of control documents which support the DCO application for the Wylfa Newydd DCO Project, as set out in Volume 1 of the DAS [APP-407].

1.2 GENERAL CONTEXT

1.2.1 Improvements to the A5025 form an important part of the Wylfa Newydd DCO Project as construction traffic will have to use this highway from the A55 Junction 3, to the east of Valley, in order to access the Wylfa Newydd Development Area.

1.2.2 The condition of the A5025 would be a concern even if the Wylfa Newydd DCO Project did not proceed as surveys indicate that it does not meet current highway standards. Improvements therefore need to be made to meet the needs of existing and future highway users, as well as to meet the specific construction and operational needs of the Wylfa Newydd DCO Project.

1.2.3 The proposed package of improvements to the A5025 seek to address issues such as substandard width, alignment and overtaking opportunities. The proposals would prevent further deterioration of the road and assist in mitigating the risks associated with increased construction workers and materials. They would also leave a legacy of an improved highway network.

1.2.4 These improvements include both on-line solutions, comprising the replacement of the existing carriageway, minor widening and surface dressing (the A5025 On-line Highway Improvements), and off-line solutions, which comprise new sections of road to bypass villages and improvements to straighten bends in some locations (the A5025 Off-line Highway Improvements).

1.2.5 One of the main aims of these improvements is to address potential highway safety and capacity issues caused by an increase in traffic movements as a result of the Wylfa Newydd DCO Project. In addition, the A5025 Off-line Highway Improvements seek to address potential environmental effects on communities, including noise from increased road traffic and severance, and to allow two Heavy Goods Vehicles (HGVs) to pass each other safely at the same time in opposite directions. The A5025 Off-line Highway Improvements include bypasses, the purpose of which is to avoid an increase in vehicles passing through villages, and to provide safe overtaking opportunities by improving visibility along the A5025, in order to reduce driver frustration.

1.2.6 This Design and Access Statement (DAS) identifies the design approach, criteria and standards that have been used to inform the design of the A5025 Off-line Highway Improvements only. The A5025 On-line Highway Improvements are detailed in a separate DAS submitted as part of a separate Town and Country Planning Act 1990 (TCPA) application, although the design concepts and criteria applied to each of these elements is similar to ensure that the improvements are compatible in terms of their design to deliver a cohesively considered package of highway improvements. Figure 1 illustrates the location of the proposed A5025 Off-line Highway Improvements.

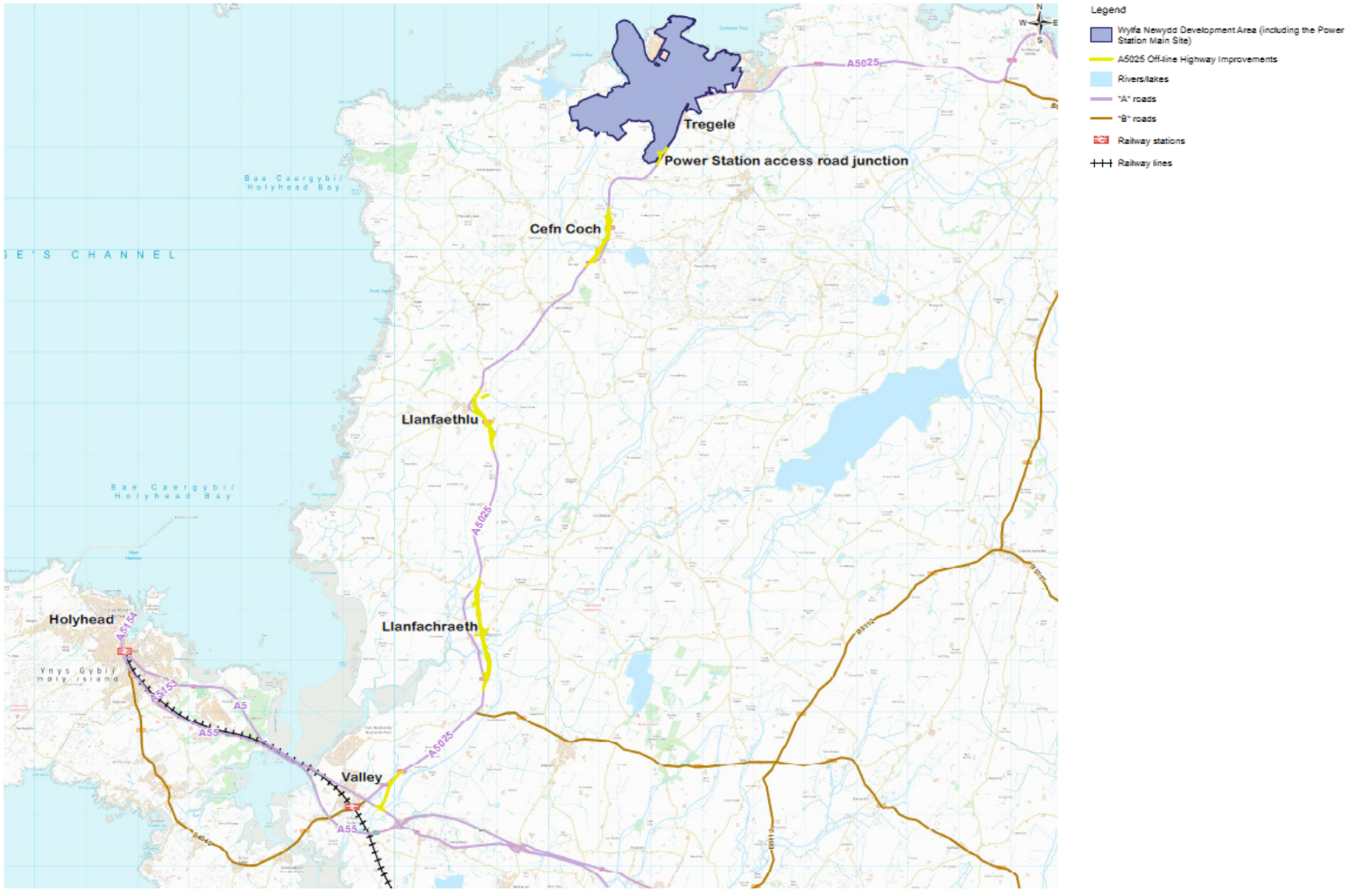


Figure 1 Overview of the A5025 Off-line Highway Improvements

1.3 STRUCTURE OF THIS DOCUMENT

1.3.1 This document is set out in two parts. Part A defines the 'design principles' with which the detailed design of the A5025 Off-line Highway Improvements has to accord (based on an appraisal of the site context and design brief). Part B then provides an analysis of how the design has been developed in accordance with these principles and parameters (specifically addressing the key elements of good design identified in TAN12).

1.3.2 Part A: Context and principles:

- Chapter 1 introduces the A5025 Off-line Highway Improvements, sets out the design brief, operational and functional requirements, and describes how this document relates to Volumes 1, 2 and the rest of Volume 3 of the DAS.
- Chapter 2 summarises the existing physical context of the A5025 Off-line Highway Improvements. The chapter also reviews design and access related feedback from consultation events and explains how the proposed development has evolved in response.
- Chapter 3 considers the design objectives and concepts applied to the A5025 Off-line Highway Improvements. This chapter also provides the 'design principles' that the development will adhere to (having regard to the context set in chapter 2).

1.3.3 Part B: Design proposals:

- Chapter 4 shows how the A5025 Off-line Highway Improvements will promote high levels of environmental sustainability and community safety.
- Chapter 5 sets out how the proposed development will demonstrate safety and security.
- Chapter 6 provides details relating to accessibility of the site including details of inclusive access measures as well as detail regarding the movement for all users.
- Chapter 7 confirms the post operation strategy following completion of the A5025 Off-line Highway Improvements.

1.3.4 Appendix A provides plans showing the illustrative landscape proposals.

1.3.5 Appendix B sets out the documents referred to in this document.

1.4 DESCRIPTION OF THE PROPOSED DEVELOPMENT

1.4.1 The 16.5km stretch of the A5025 identified for improvement has been divided into eight distinct sections, with a further section associated with the proposed Power Station Access Road Junction. Of these, section 1, 3, 5 and 7 and the Power Station Access Road Junction relate to the A5025 Off-line Highway Improvements, as summarised below:

- Section 1 (Valley) (Work no. 8)– A5 east of Valley junction to north of Valley Junction (A5/A5025) – a length of 1.06km;
- Section 3 (Llanfachraeth) (Work no.9) - north of Valley Junction (A5/A5025) to north of Llanynghenedl – a length of 2.28km;
- Section 5 (Llanfaethlu) (Work no. 10) - south of Llanfaethlu to north of Llanfaethlu) – a length of 1.43km;
- Section 7 (Cefn Coch) (Work no. 11) - north of Llanrhuddlad to north of Cefn Coch – a length of 1.3km; and
- Power Station Access Road Junction (Work no.1J) – north of Cefn Coch.

1.4.2 The A5025 Off-line Highway Improvements include new sections of highway bypassing villages along the A5025 and substandard bends in the road.

OVERVIEW OF A5025 OFF-LINE HIGHWAY IMPROVEMENTS

1.4.3 Section 1 comprises a proposed four arm roundabout and a bypass connecting the A5 with the A5025 to the east of the existing A5/A5025 signalised junction in Valley. This is 1.06km in length.

1.4.4 Section 3 comprises a proposed new 2.28km highway to bypass Llanfachraeth to the east of the village. The bypass is proposed to improve visibility, avoid an increase in vehicles passing in opposite directions through the village, and to provide increased safe overtaking opportunities. The bypass is to be located away from the village and partially in a cutting to minimise the impact of noise and vibration. Illustrative designs for the proposed viaduct, underpass and overbridge within this section are currently submitted. The DCO Requirements provide that Horizon will be required to prepare and submit detailed design drawings for approval by the relevant planning authority, prior to the construction of these structures. These detailed designs must be prepared in accordance with the design principles in this document, the maximum and minimum parameters for those structures in the DCO Requirements; and the limits of deviation specified for those works set out in article 4 of the Order.

1.4.5 Section 5 comprises a 1.43km bypass at Llanfaethlu which is proposed to provide a straighter section of road, where there are two existing substandard bends near the Black Lion public house and through Llanfaethlu village. Runoff from the surface of the highway would drain to filter drains in the verge either side of the carriageway. The filter drains would discharge to three new attenuation ponds (ponds A, B and C), positioned near to existing watercourses and providing storage and water quality treatment (through settlement).

1.4.6 Illustrative designs for the associated underpass in this section are currently submitted. The DCO Requirements provide that Horizon will be required to prepare and submit detailed design drawings for approval by the relevant planning authority, prior to the construction of this underpass. These detailed designs must be prepared in accordance with the design principles in this document, the maximum and minimum parameters for those structures in the DCO Requirements; and the limits of deviation specified for those works set out in article 4 of the Order.

1.4.7 Section 7 comprises a proposed new 1.3km section of highway to bypass two existing substandard bends in Llanrhwydrus (between Llanrhyddlad and Cefn Coch). The road leading to Llanfechell to the east of the proposed bypass would be stopped-up and the existing staggered cross-roads along the A5025 between Llanrhwydrus and Llanfechell would be removed. This reduces the risk of slow moving vehicles unsafely manoeuvring between the two junctions. The design includes an overbridge approximately half way along the bypass to maintain connectivity between the farm land either side of the new road.

1.4.8 At the Power Station Access Road Junction it is proposed to provide a new junction from the A5025 to link with the proposed Power Station Access Road. A new roundabout junction will be designed to provide access to the proposed Power Station Site via a new road. The roundabout junction will be designed off-line (set back from the existing highway) and the A5025 re-aligned to join the new roundabout.

1.4.9 Compounds are proposed in sections 1, 3, 5, and 7 and can be described as follows:

- Section 1 - The compound (see figure G1-1 of the Environmental Statement (ES) [APP-353] and [APP-354]) would be located at the northern end of section 1, adjacent to the eastern boundary of the bypass. It would be approximately 250m long and up to 25m wide and would comprise site/ welfare facilities, a plant store and a materials store. The compound would be accessed from the existing A5025 and no access roads would be required. A total of 60 parking bays have been included in the design of the compound. These would be used by the contractor's office-based staff and the site team. Surfacing of the compound would be made up of crushed stone. Temporary lighting would be required within the compound, assumed to be on columns <5.0m high or fixed to the mobile office walls. Once construction of section 1 is complete, the compound area would be reinstated and handed back to the landowner for its former agricultural use;
- Section 3 - As described for section 1 above. The compound would be located between the A5025 and the proposed bypass at the southern end of the section and would be 1.4ha in size, as shown on figure G1-2. Once construction of section 3 is complete, the compound would be reinstated and handed back to the landowner for agricultural use.
- Section 5 - As for section 1 above. The compound would be approximately 1.1ha in size, as shown on figure G1-3. Once construction of section 5 is complete, the compound would be reinstated and handed back to the landowner for agricultural use.
- Section 7 - As for section 1 above. The compound would be approximately 0.93ha in size, as shown on figure G1-4.
- Power Station Access Road Junction - As for section 1 above except that it has been assumed that the construction compound for section 7 would be used. The haul route for this section would follow the haul route of section 7, on to the existing A5025 to the Power Station Access Road Junction site.

1.5 STRATEGIC DESIGN BRIEF

1.5.1 Horizon's overarching goals and objectives for the Wylfa Newydd Project are set out in Volume 1 of the DAS [APP-407].

1.5.2 For the Associated Development sites, Horizon's proposals should:

- provide the necessary facilities to ensure the delivery of the Power Station that meets the urgent need for new nuclear power as early as possible in a safe and efficient manner;
- minimise visual impact as far as possible;
- respect local communities, and minimise impact on them as far as possible, particularly those very close to the Associated Development sites; and
- help to create a positive legacy for Anglesey, thinking about each significant investment and how it can create a positive legacy for the area, recognising that this will not always involve retaining the buildings on the Associated Development sites.

1.5.3 This chapter sets out the specific requirements in relation to the A5025 Off-line Highway Improvements based on the above.

1.5.4 The objectives of the proposed A5025 Highway Improvements are to:

- upgrade the route, both in terms of standard of construction of the road and road geometry, such that it can support increased levels of traffic, and improve safety and accessibility;
- ensure that all relevant abnormal loads can pass along the full length of the A5025;
- reduce any potential increase in road accident risk;
- reduce any adverse impacts on local communities;
- reduce any adverse impacts on the environment; and
- seek opportunities where possible to achieve improvements for local communities and the environment through road design measures.

2 CONTEXTUAL ASSESSMENT

2.1 PHYSICAL ASSESSMENT
2.2 POLICY ASSESSMENT

Contextual assessment

2.1 PHYSICAL ASSESSMENT

2.1.1 This section gives a contextual description of the A5025 Off-line Highway Improvements and the surrounding area, providing an informed evidence base to guide the principles and concepts of the A5025 Off-line Highway Improvements.

2.1.2 The A5025 is a principal transportation route on the Isle of Anglesey, distributing traffic around the western, northern and eastern parts of the island. The route connects the northern Anglesey coast and villages in western and northern Anglesey to the A55 at two points, one in the north-west of the island, and one in the south-east of the island at the Menai Bridge.

2.1.3 The A5025 forms the main access route to the existing Magnox Power Station on the northern coastline near Tregele, and provides access to a number of small villages and scattered rural properties dispersed across agricultural land.

2.1.4 The A5025 varies significantly in width and elevation. It follows a winding course with a number of sharp bends partially due to the nature of its piecemeal development over time. In some places, the route passes through rural communities where it is closely flanked on one or both sides by residential properties and other structures. Much of the road is lined by a grass verge and contained by boundary features including fences, hedgerows, stone walls and cloddiau (stone-faced earth bank). Other vegetation generally comprises occasional hedgerow trees. Photographs illustrating the existing A5025 in its rural context can be found in figures 2 and 3 below.

EXISTING LAND USE

2.1.5 The majority of the land surrounding the A5025 has remained relatively unchanged from the earliest available historical mapping to the present day, with agricultural land dominating the area and some settlements associated with historical, industrial or more recent commercial activities.

LANDSCAPE AND VISUAL CONTEXT

2.1.6 The whole of the Anglesey coastline and hinterland, extending inland for several kilometres in parts, is designated as an Area of Outstanding Natural Beauty (AONB). In places, such as Llanfachraeth and Llanfaethlu, the boundary of the AONB extends as far as the A5025.

2.1.7 The A5025 from Valley to the Wylfa Newydd Development Area runs through an open, rolling landscape that is mostly rural in character. The whole of the Anglesey coastline and hinterland, extending inland for several kilometres in parts, is designated as an Area of Outstanding Natural Beauty (AONB). In places, such as Llanfachraeth and Llanfaethlu, the boundary of the AONB extends as far as the A5025.

2.1.8 The Review of Special Landscape Areas (SLA) in Gwynedd and Anglesey (Land Use Consultants, 2012) identified six proposed SLAs on Anglesey intended to replace the previous island-wide designation excluding the Isle of Anglesey AONB. Following the adoption of the Anglesey and Gwynedd Joint Local Development Plan, 2017 (JLDP) these six SLA designations came into force, superseding the previous island-wide SLA. Section 7 is located approximately 1km to the west of the Mynydd Mechell & Surrounds SLA, which is one of the six new such designations which came into effect following the adoption of the JLDP in July 2017.

2.1.9 The proposed Mynydd Mechell & Surrounds SLA is a small scale, craggy landscape with a wild, upland feel, which contrasts with the surrounding smooth, rolling landscape of the drumlin fields. There is very limited development leading to a rural character, influenced by a network of small, irregular fields, narrow lanes, dry stone walls and stone buildings. The strong character and landscape pattern is evidence of the historic past of the area.

2.1.10 The local landscape surrounding the A5025 is of high quality and differing character, mainly comprising rolling pastoral agricultural land. Much of the road is lined by grass verges bordered by a mixture of hedgerows and trees, fences, stone walls and cloddiau (stone-faced earth banks). Ancient woodland is located in close proximity to the road corridor, near the small settlement of Cefn Coch.

PROW

2.1.11 Public Rights of Way (PRoWs) join and cross the A5025 between the Existing Power Station and Valley, and many of them form a wider network of routes that connect local communities and settlements. The only formal cycle provision is the National Cycle Network (NCN) Route 566 (the Copper Trail) and NCN Route 5, which cross the A5025 at Tregele and Llanynghenedl respectively. Figure 4 and 5 below illustrate this. Local watercourses and drains pass under the carriageway within culvert structures, with many adjacent agricultural holdings accessed directly from the A5025 by way of private means of access.

Figure 2 Typical stone wall

Figure 3 Typical hedgerow

HERITAGE

2.1.12 A range of archaeological and cultural heritage assets of varying historic significance have been recorded in the area surrounding the A5025, the most important of which are Scheduled Monuments, Listed Buildings, and Registered Historic Parks and Gardens. The landscapes surrounding the A5025 predominantly date to the post-medieval period.

TOPOGRAPHY

2.1.13 The A5025 varies significantly in width and elevation. It follows a winding course with a number of sharp bends and, in some places, passes through rural communities, where it is closely flanked by residential properties and other structures.

ECOLOGICAL DESIGNATIONS

2.1.14 Three European Designated Sites are located within 2km of the A5025, comprising Anglesey terns/Morwenoliaid Ynys Môn Special Protection Area; Cemlyn Bay Special Area of Conservation, and; Llyn Dinam Special Area of Conservation. There are also five designated ecological sites of national importance within 500m of the A5025, comprising Beddmanarch-Cymyran Site of Special Scientific Interest (SSSI); Llyn Llygeirian SSSI; Cae Gwyn SSSI; Llyn Garreg-Lwyd SSSI; and Tre'r Gof SSSI.

2.1.15 Please refer to figure 4 and figure 5 below which illustrate the key ecological features of the site and surrounding area.

SOILS

2.1.16 Soils of varying agricultural quality and type have been recorded along and surrounding the A5025, some of which have been classified as Agricultural Land Classification grades 2 and 3a, considered to be best and most versatile soils.

SURFACE/GROUND WATER

2.1.17 The main surface water bodies crossed by, or located in proximity to, the A5025 comprise the Afon Cleifiog, Afon Alaw, Tan R'Allt, Afon Cafnan and several small watercourses and ditches. A number of these waterbodies have been identified as supporting great crested newts.

FLOOD RISK

2.1.18 There are no records of significant carriageway flooding along the A5025. The current drainage system relies on runoff from the road discharging into adjoining land, ditches or watercourses. In several locations, runoff is discharged into gullies installed at low points, which are connected to ditches and watercourses.

2.1.19 As part of the roundabout junction in section 1 would be constructed within the floodplain, compensation flood storage would be provided to the west of the new section of road. At this location, the ground level would be reduced by a maximum of 1.2m. In section 3, on the eastern side of the viaduct, in between Afon Alaw and its tributary, a flood compensation storage area would be constructed.

SOCIO-ECONOMIC

2.1.20 The majority of the land surrounding the A5025 has remained relatively unchanged from the earliest available historical mapping to the present day, with agricultural land dominating the area and some settlements associated with historical, industrial or more recent commercial activities.

2.1.21 The main communities situated along the route include the villages of Llanrhuddlad, Llanfaethlu, Llanfachraeth, Llanynghenedl and Valley. Facilities within these villages include shops, places of worship, hotels and other accommodation, recreational areas and places of education. A small number of facilities are located along the A5025 outside these communities.

2.1.22 The Welsh language has a strong presence on Anglesey and forms an integral part of community life and local education.

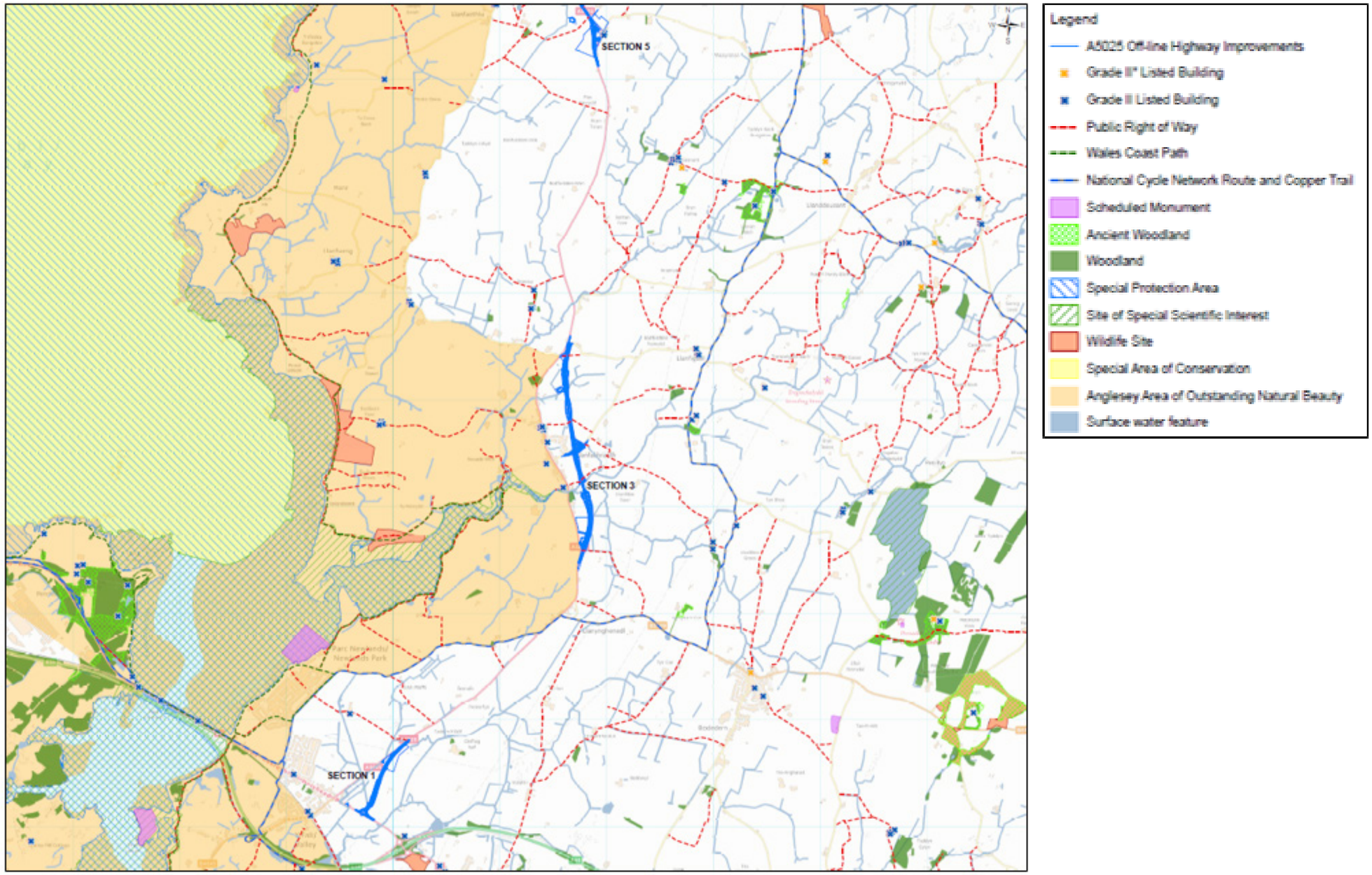


Figure 4 Environmental features along the A5025 Sections 1, 3 and 5

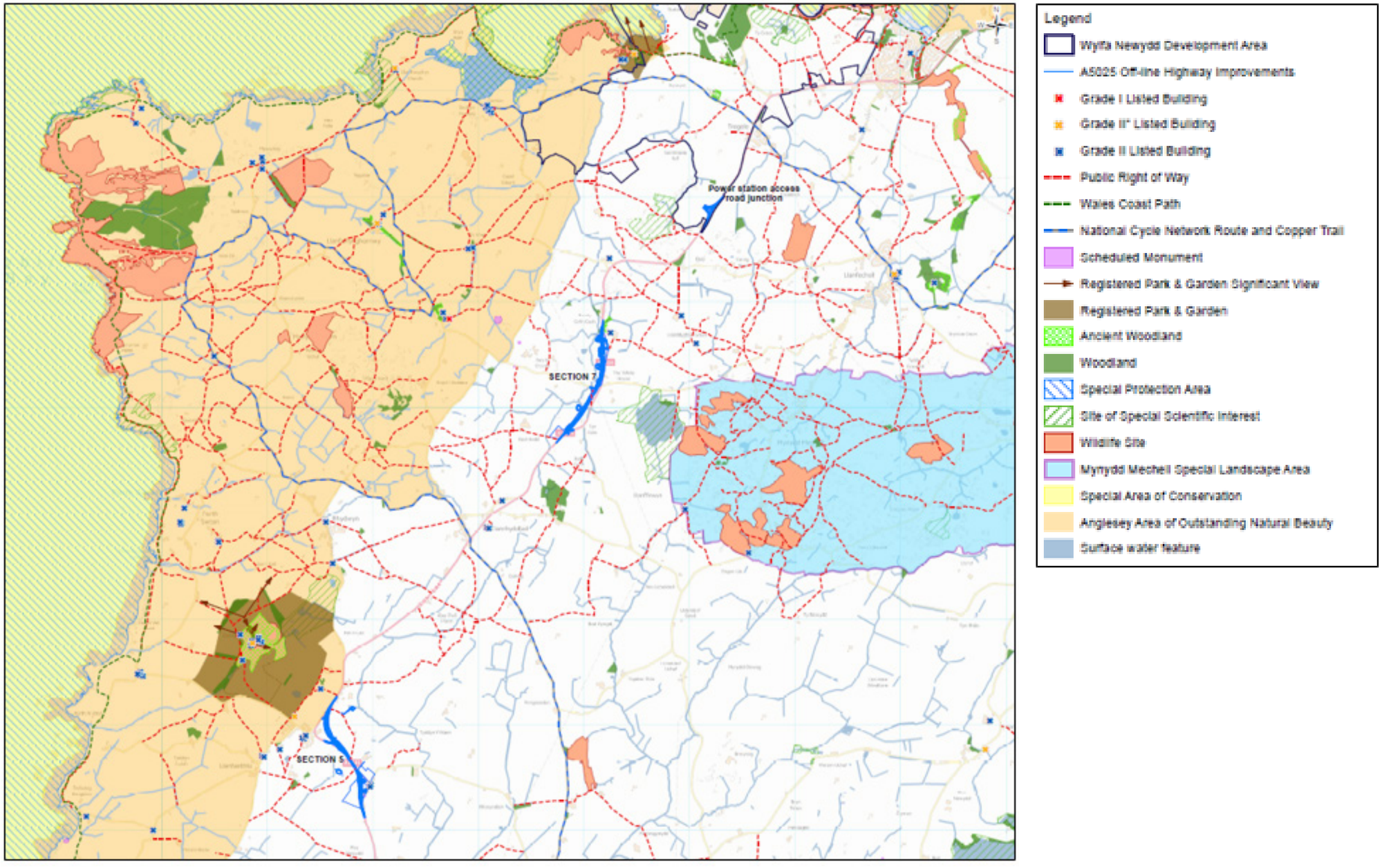


Figure 5 Environmental features along the A5025 Sections 5, 7 and Power Station Access Road Junction

2.2 POLICY ASSESSMENT

2.2.1 Planning policy provides a key component of the context for the Wylfa Newydd Project and its constituent parts. Volume 1 of the DAS [APP-407] provides an overview of national, regional and local planning policy, where they are relevant to the determination of the DCO. For the purposes of the DAS, this focuses on policy relating to the principle of development (established in the National Policy Statements (NPSs)) and those that relate specifically to design and access considerations. The Planning Statement [APP-406] provides a full analysis of all relevant planning policy relating to the A5025 Off-line Highway Improvements.

2.2.2 The relevant NPSs (EN-1 and EN-6) form the primary basis for decisions. These firmly establish the principle of the need for new nuclear power, and that this need is urgent.

2.2.3 Development plan policy and guidance provides further layers of policy support for principles of good design, accessibility and sustainability. This includes Supplementary Planning Guidance (SPG) and the JLDP which specifically relates to the Wylfa Newydd DCO Project. Whilst the NPSs form the primary basis for decision making for the DCO, these policies may be considered important and relevant.

2.2.4 The A5025 Off-line Highway improvements are supported by adopted planning policy. The JLDP states that improvements to the existing transport network will be granted provided they conform to a number of criteria. These include minimising the impact on the built and natural environment, minimising permanent land take, good high quality design, improvement in road safety and improvement in terms of overall accessibility (Policy TRA1). Paragraph 6.1.46 of the JLDP confirms that the four main locations on the route between Valley and the Power Station Site that will require significant improvements are as listed below. These four locations are within the scope of the A5025 Off-line Highway Improvements:

- A5/A5205 (Valley);
- A5025 (Llanfachraeth);
- A5025 (Llanfaethlu); and
- A5025 (Cefn Coch).

2.2.5 The New Nuclear Build at Wylfa Supplementary Planning Guidance 2014 ("the Wylfa SPG") states in Objective 6 that the Wylfa Newydd Project should promote the sustainable movement of people and materials. Paragraph 5.6.1 of the Wylfa SPG states that key junctions and sections of carriageway may need improving to cope with peak traffic flows (these include sections of the A5025 and Junction 3 (A55/A5 junction).

3 PRINCIPLES OF THE PROPOSED DEVELOPMENT

3.1 OVERVIEW

3.2 CONSULTATION AND DESIGN DEVELOPMENT

3.3 DESIGN PRINCIPLES

Principles of the proposed development

3.1 OVERVIEW

3.1.1 The objectives of the proposed A5025 Highway Improvements are provided in paragraph 1.5.1 of this DAS.

3.1.2 In developing the design proposals for the A5025 Off-line Highway Improvements, Horizon has had regard to planning policy guidance relating to design. At national level, Planning Policy Wales confirms that good design is central to achieving sustainable development. To understand local context, particular regard has been given to TAN 12.

3.1.3 Whereas the objective of securing a high standard of sustainable design is the key design driver for many types of development, due to the nature of the activities associated with the A5025 Off-line Highway Improvements, design alternatives available to Horizon are limited and this factor has therefore dictated design and layout to a significant degree.

3.1.4 In addition to environmental considerations, decisions on the design alternatives for the A5025 Off-line Highway Improvements were taken on the basis of:

- existing on-site infrastructure;
- engineering solutions;
- feedback from consultation and engagement with key stakeholders;
- maximising the retention of key site characteristics and environmental features; and
- utility services and other infrastructure works.

3.1.5 The design of the A5025 Off-line Highway Improvements has taken account of a number of environmental constraints along and immediately adjacent to the A5025 as part of the design-development process (see chapter G2 of the ES, [APP-305]), the objective being avoid or to minimise the effect on a particular feature during their construction and/or operation.

3.1.6 Accordingly, a number of environmental and design-based mitigation measures have been incorporated (embedded) into the design of A5025 Off-line Highway Improvements; these are described in section 1.3 of chapter G1 of the ES [APP-304].

3.1.7 The design of the A5025 Off-line Highway Improvements has responded to the following environmental constraints and opportunities through the development of embedded mitigation and good practice mitigation (to be secured through the strategies presented in the Wylfa Newydd Code of Construction Practice (CoCP) [APP-414] and the A5025 Off-line Highway Improvements sub-CoCP) [APP-420].

- Anglesey AONB – the design has sought to avoid encroachment into this designated landscape by retaining the majority of the works within the existing highway boundary wherever possible.
- Ancient woodland – the design avoids encroachment into the stand of ancient woodland near to the northern tie-in point of section 7 (Cefn Coch).
- Water bodies – the design includes an 8m buffer zone around an existing watercourse (Afon Alaw) and the construction working area associated with the proposed viaduct within section 3, in order to protect this environmentally sensitive feature from construction-related activities.
- PRoW and PMAs – the design has sought to avoid physical changes to PRoW and private accesses by retaining existing access arrangements wherever possible and, where effects are unavoidable, by providing new or modified accesses such as diversions.
- Boundary features – the design has sought to retain existing boundary vegetation and features wherever possible, but where effects are unavoidable, measures have been included in the design to reinstate highway and field boundaries. There are some sections of field boundary walls which would be relocated.
- Ecology – the design has sought to avoid sensitive ecological features where possible, with 'no go' areas and 10m exclusion zones included in the designs of sections 3 and 7 to reduce construction effects on these receptors.

3.2 CONSULTATION AND DESIGN DEVELOPMENT

3.2.1 The A5025 Off-line Highway Improvements have been subject to a process of design evolution, informed by both consultation with stakeholders and the iterative consideration of environmental matters. Chapter G2 of the ES [APP-305] provides an overview of material issues raised during the process of screening, scoping and consultation, and identifies how and where these have been considered. An explanation is also provided where a particular aspect or request has not been considered further or included in the assessment.

3.2.2 These processes have helped inform the identification and selection of strategic and local highway solutions, the approaches to construction and delivery of the improvements, and the refinement of designs to reduce, where practicable, their potential environmental effects.

3.2.3 Volume 1 of the DAS [APP-407] provides an introduction to the consultation process for the Project, which is set out in detail in the Consultation Report [APP-037]. The Planning Statement [APP-406] also summarises the outcome of consultation in relation to the A5025 Off-line Highway Improvements.

3.2.4 Horizon undertook three stages of design development of the A5025 Off-line Highway Improvements, as prescribed in Volume 5 of the Design Manual for Roads and Bridges (DMRB) guidance and summarised below. Refer to chapter G2 [APP-305] for full details.

- DMRB Stage 1: Involving the identification of environmental, engineering, economic and traffic advantages, disadvantages and constraints associated with broadly defined improvement strategies.
- DMRB Stage 2: Involving the identification of the factors to be taken into account in choosing alternative routes or improvement schemes and to identify the environmental, engineering, economic and traffic advantages, disadvantages and constraints associated with those routes or schemes.
- DMRB Stage 3: Involving the clear identification of the advantages and disadvantages, in environmental, engineering, economic and traffic terms, of the preferred solution(s). This stage also requires an assessment of the significant environmental effects of the preferred solution to be undertaken, in accordance with the statutory obligations under the prevailing EIA Regulations.

DMRB STAGE 1

3.2.5 Independent studies conducted for Horizon in 2010 and 2011 identified that a package of road improvements would be needed to ensure that routes used by future development traffic associated with the Wylfa Newydd Project are of a suitable standard.

3.2.6 The first stage of design work and optioneering (a process of identifying, assessing and evaluating options) for the A5025 Highway Improvements commenced in 2011. A series of conceptual design options were developed and subjected to assessment and evaluation.

3.2.7 Following the identification of the DMRB Stage 1 options, a stakeholder workshop was held between Horizon, Mott MacDonald and the IACC in October 2011 to review the preliminary options and agree those to be taken forward for appraisal and evaluation as part of DMRB Stage 2.

3.2.8 The appraisal did not identify any major differentiators between the DMRB Stage 1 options on environmental grounds however the outcomes of the process were used to inform consultation and the design-development process going forwards.

STAGE ONE PRE-APPLICATION CONSULTATION (SEPTEMBER – DECEMBER 2014)

3.2.9 A series of preliminary off-line alignments based on the four locations associated with DMRB Stage 1 options were published as part of Pre-application Consultation Stage One in September 2014

3.2.10 Broad support was received following consultation for the need for road improvements, noting that the identified road proposals were a step towards this. There was strong support for bypasses that avoided the centre of settlements and schools. There was an overarching concern regarding existing road congestion and safety.

3.2.11 Feedback recorded from statutory and non-statutory consultees and the general public highlighted a general acceptance that improvements to the A5025 were necessary as part of the Wylfa Newydd Project, but noted that these could affect villages along the route in terms of traffic relocation, dust, recreation, visual impact and general disruption (e.g. loss of passing trade to businesses during construction).

3.2.12 Respondents passed specific comments on aspects including the proposed locations of the off-line options and where they would re-join the existing A5025, whether parts should be built to dual carriageway standard, road speeds, accessibility onto the new sections of highway, and public transport and cycling provision. Feedback was also provided by statutory consultees such as the IACC and NRW with regard to the technical dimension of the EIAs being undertaken as part of the Wylfa Newydd Project.

3.2.13 Following this consultation, modifications were made to the preliminary designs which resulted in the selection of options to be taken forward to DMRB Stage 2 for further design-development. These modifications centred upon changes to the Valley design to incorporate lighting at the roundabout on safety grounds, and changes to the tie-in location of the Llanfachraeth bypass options.

DMRB STAGE 2

3.2.14 Following completion of DMRB Stage 1 and during Stage One Pre-Application Consultation, Horizon appointed URS (now AECOM) and Jacobs in late 2014 to commence engineering design work and undertake environmental studies respectively for DMRB Stage 2.

3.2.15 A decision was made by Horizon and AECOM to re-evaluate the feasibility of implementing localised widening solutions within the four locations that Mott MacDonald had previously identified as being suitable for off-line improvement. The outcomes of this review were as follows.

- Section 1 - It was concluded that the existing junction within Valley was unsuitable to accommodate any increased vehicle numbers due to its geometry and its ability to accommodate HGVs approaching from junction 3 and turning right onto the A5025. It was also concluded that the close proximity of commercial and residential properties to the junction effectively restricted widening opportunities.
- Section 3 -It was concluded that increased traffic during construction would have a marked impact on the existing highway network through the village. It was observed: that residential properties located on the back of the footway and/or carriageway would restrict widening opportunities; that there could be air quality and noise effects due to the predicted traffic flow increase; that parked cars outside properties currently restrict traffic flows in both directions; and that existing accesses onto the A5025 within the village currently have poor visibility.
- Section 5 - It was concluded that the two existing sharp bends do not conform to current design standards, and that it would not be possible to resolve their alignment through widening within the existing highway boundary.
- Section 7 - It was concluded that whilst on-line improvements could be used to smooth out the existing bends within this section of carriageway, they would still not achieve the required highway standards.

3.2.16 A decision was also made to review the design principles and assumptions that underpinned the DMRB Stage 1 options, prior to carrying these through to DMRB Stage 2. This confirmed that it would be environmentally unacceptable to develop alternative off-line alignment options:

- to the west of Llanfachraeth (section 3), as this would require permanent land take within the Anglesey AONB, and the Beddmanarch-Cymyran SSSI;
- to the west of Llanfaethlu (section 5), as this would require more significant permanent land take within the Anglesey AONB and would potentially bring traffic in closer proximity to the more developed areas of the village; and
- to the east of the A5025 near the settlement of Cefn Coch (section 7), as the local topography of the area would require considerable earthworks to achieve the required levels and road profile, which could appear incongruous in the local landscape.

3.2.17 In order to develop the DMRB Stage 1 option designs into more detailed engineered solutions, monthly design meetings were held between Horizon, Jacobs, AECOM and highways officers from the IACC from late 2014. Targeted meetings were also held with key stakeholders including the IACC, Natural Resources Wales (NRW) and Fisher German (Horizon's appointed land agents) on specific themes such as drainage design, land take, land negotiations and accommodating the operational requirements of landowners.

3.2.18 Horizon undertook an option evaluation workshop in March 2015 to identify the relative advantages and disadvantages of each of the DMRB Stage 2 options, in order to refine the number of alternatives under consideration ahead of planned information events to be held by Horizon to present the proposed A5025 Off-line Highway Improvements in July 2015. A description of how the designs were amended as a result of this stage can be found in chapter G2 of the ES [APP-305].

ASSOCIATED DEVELOPMENT CONSULTATION (JULY 2015)

3.2.19 Horizon held a series of public information events in July 2015 which presented the options for the A5025 Off-line Highway Improvements.

3.2.20 Whilst the location and alignment of the options were largely settled, scope was offered for attendees to comment on the designs and influence them prior to their progression to the next stage of design-development. The events invited responses on aspects including:

- progressing either an overbridge or T-junction option to an existing side road within Llanfachraeth (section 3);
- potential options for cycle route improvements around Valley and near to the Power Station Site; and
- preferences on traffic management during construction.

3.2.21 Feedback from the events concluded that:

- the vast majority of respondents preferred an overbridge crossing to link the existing side road in Llanfachraeth to the village;
- a strong preference by cyclists to continue travelling on the existing A5 between Valley and Caergeiliog, rather than having to navigate the new A5/A5025 junction proposed as part of the bypass design;
- a preference by cyclists to be routed onto Nanner Road across to Llanfechell, with other alternatives (such as a dedicated cycle path) being offered by respondents; and
- a majority preference by respondents to have construction works managed by single lane traffic lights to reduce daily disruption, but which would lead to a longer construction duration overall.

3.2.22 The majority of general comments focused on the distance of the new off-line sections from properties, particularly at Llanfachraeth, with concerns raised about potential noise, vibration and pollution effects caused by increased traffic at this location.

3.2.23 Requests were made to mitigate the potential environmental effects of the A5025 Off-line Highway Improvements through measures such as triple glazing to reduce noise levels, landscaping to screen new sections of highway, and through the installation of calming measures within the bypassed villages to reduce potential rat-running. Suggestions were also made to use land that would be left between the villages and new sections of highway for landscaping and community use.

3.2.24 Based on the event outcomes, further modifications to the design of the A5025 Off-line Highway Improvements were made. These included progressing with the side road overbridge option within Llanfachraeth (section 3) and further development of the emerging cycling provisions prior to carrying the option designs through to DMRB Stage 3.

DMRB STAGE 3

3.2.25 The designs for the DMRB Stage 2 options were subject to continued development and refinement as part of DMRB Stage 3. The emerging outcomes of the EIA process were used as the basis for the identification of environmental mitigation measures to be embedded into the design of the A5025 Off-line Highway. A description of how the designs were amended as a result of this stage can be found in chapter G2 of the ES [APP-305].

Design Commission for Wales (November 2015)

3.2.26 The DMRB Stage 3 designs for the A5025 Off-line Highway Improvements were presented to the Design Commission for Wales (DCfW) in November 2015.

3.2.27 Emphasis was placed in the meeting on discussing the design challenges and available options for the A5025 Off-line Highway Improvements, with section 3 used as an example to demonstrate how design-development was progressing towards achieving an integrated engineering, environmental and social solution.

3.2.28 Feedback from DCfW focused on a number of themes, particularly demonstrating the overall design approach adopted for the highway and its associated structures, and ensuring any landscaping proposals responded to the existing landscape framework and pattern. Positive statements were made in relation to the proposed viaduct crossing and how this would offer scope to rationalise a number of design-related issues in section 3, with recommendations made to consider its appearance and finish.

3.2.29 Further recommendations were made on the basis that the A5025 Off-line Highway Improvements represented an opportunity for positive local intervention. These related to the subtle interpretation of heritage in the local area, developing the emerging drainage proposals to provide wider community value, and improving the network of footpaths in the area to create meaningful connections.

3.2.30 The outcomes from DCfW engagement were accordingly reviewed and considered as part of the design-development process.

JANUARY 2016 PROJECT UPDATE CONSULTATION

3.2.31 Horizon provided a Project Update in January 2016, the purpose of which was to continue to gather feedback on the Wylfa Newydd Project and take account of the views of statutory consultees and local people.

3.2.32 In relation to the A5025 Off-line Highway Improvements, the Project Update provided indicative information on the alignments of the proposed improvements within Valley, Llanfachraeth, Llanfaethlu and Cefn Coch, and presented a summary of the ongoing EIA process.

3.2.33 The design for the Power Station Access Road Junction was also presented as part of this consultation. This component remained part of the Wylfa Newydd Power Station design at that time, and did not form part of the A5025 Off-line Highway Improvements.

3.2.34 Statutory consultees considered the proposed designs to be well thought out and were sympathetic to the surrounding environment, with the promotion of cycling within the designs welcomed. Some concerns were raised by NRW in relation to potential areas of flood risk at Valley and Cefn Coch, and requested information on the alternatives considered to avoid such areas.

3.2.35 The majority of other consultees expressed concerns in relation to the environmental impacts associated with increased traffic, particularly at unsociable times and during busy periods at residential properties located close to the A5025.

3.2.36 The above were accordingly considered as part of the ongoing design-development of the DMRB Stage 3 options, described below, between March-August 2016.

DESIGN-DEVELOPMENT BETWEEN MARCH-AUGUST 2016

3.2.37 Following the Project Update, further work was undertaken from March 2016 on developing the designs of the A5025 Off-line Highway Improvements and taking account of issues raised by consultees.

3.2.38 A Road Safety Audit was undertaken on the designs in July 2015 and a designer's response was issued in August 2016. The outcomes of which were used to refine the emerging designs from a safety perspective. For example, as recommended, the A5025 will be improved in stages. The A5025 On-line Highway Improvements will be constructed in advance of the A5025 Off-line Highway Improvements and so the tie-ins (between the existing and proposed sections of carriageway) will be constructed in phases.

3.2.39 An audit of existing PRoW and cycling provisions along the A5025 was also undertaken, which involved a review of how the designs could affect routes and facilities currently used by NMUs and the adequacy of the proposed solutions incorporated into the A5025 Off-line Highway Improvements. The recommendations arising from this audit were factored into the design process.

STAGE TWO PRE-APPLICATION CONSULTATION

3.2.40 Horizon undertook its second stage of pre-application consultation on the Wylfa Newydd Project between August-October 2016.

3.2.41 Feedback recorded from statutory and non-statutory consultees and the general public highlighted a number of key concerns, as noted below.

3.2.42 Respondents passed specific comment on aspects including layout issues such as: awkward bends; road speeds; whether the new sections would be constructed to minimum standards; increase in accidents rates on parts of the highway not included in the A5025 Off-line Highway Improvements; increases in traffic volumes on adjacent local roads; and whether increases in traffic flows could affect accident response times.

3.2.43 Additionally, feedback was provided by statutory consultees with regard to including controls during construction for the release of silt into the watercourses adjacent to the works. Particular reference was made to the potential effects to Beddmanarch - Cymyran SSSI, where silt released down the Afon Alaw, could potentially indirectly affect birds by modifying siltation patterns in the estuary and modifying their roost/loafing areas.

3.2.44 The following amendments were made following this stage of consultation:

- Section 1: The proposed roundabout junction would be located on-line (to be constructed as part of the existing A5 highway). The roundabout junction would be located within the 1 in 100 year flood zone plus a 30% allowance for the effects of climate change, whereas the bypass would be positioned outside of the 1 in 100 year flood zone. A cycling and pedestrian path to the south of the roundabout and away from the carriageway edge is now proposed to increase pedestrian and cyclist safety.
- Section 3: The bypass continues to include an elevated viaduct across the Afon Alaw, which is approximately 5m in height to allow cattle and pedestrians to cross the highway underneath. The viaduct is approximately 25m longer to include an 8m easement between the watercourse and the abutments, as a result of further flood modelling undertaken since the Stage Two Pre-Application Consultation. Additional land to the east is included to allow for Great Crested Newt mitigation.
- Section 5: Additional land to the west is included to allow for Great Crested Newt mitigation.
- Section 7: The carriageway width has reduced from 7.3m to 6.7m at the southern end to reduce the extent of earthworks, and at the northern end so that earthworks are not required within an ancient woodland.
- Modifications are now proposed to the A5025 south of Tregele to provide a new roundabout junction to connect to the proposed Power Station Access Road.

DESIGN OPTIMISATION BETWEEN OCTOBER 2016 AND MAY 2017

3.2.45 Modifications were made to the DMRB Stage 3 designs between October 2016-May 2017 in response to the design review workshop, Stage 2 Pre-Application Consultation, the ongoing EIA process and landowner discussions.

3.2.46 Further information of design alternatives considered is provided at chapter G2 of the ES.

STAGE THREE PRE-APPLICATION CONSULTATION FEEDBACK (MAY-JUNE 2017)

3.2.47 Horizon continued to develop the Wylfa Newydd Project as a result of the Stage Two consultation and feedback received, changes in the law and ongoing design development.

3.2.48 The comments received regarding the A5025 Off-Line Highway Improvements were generally supportive of the works.

3.2.49 Network Rail objected to the proposed highway improvements at Valley as it impacts upon Network Rail land, while a number of individual consultees support the improvements as they provide a safer junction and allow better free flow of traffic from the A55 to the A5025.

3.2.50 A few individual consultees had concerns that the improvements at Valley limit access to local businesses, negatively impacting them.

3.2.51 Section 47 consultees generally supported the Off-Line highway improvement at Llanfachraeth, with some requesting a tarmacked walkway between the two public footpaths which join the A5025, anti-noise and light pollution boards to be fitted to the viaduct, and screening from vehicle headlights to properties.

3.2.52 The Off-Line highway improvements at Llanfaethlu were generally supported by Section 47 consultees. Concerns were raised regarding the proximity of the new school at Llanfaethlu, providing better pedestrian access for those walking into the village and a safe crossing by the school entrance, and ensuring unrestricted access is maintained for all vehicles to properties.

3.2.53 The Off-Line highway improvements at Cefn Coch were equally supported and opposed by Section 47 consultees. Comments received included the difficult bends are being straightened, improving road safety; less damage to ancient woodland; a lot of land is being wasted, dividing a family farm; extending the works past Caerdegog Uchaf turning; and the crossing going into the field looks dangerous on a straightened road.

PRE-APPLICATION CONSULTATION ON ADDITIONAL LAND (STATUTORY) (JANUARY 2018)

3.2.54 Following the Stage Three Pre-Application Consultation, work progressed on the preparation of the Development Consent Order (DCO) application. As part of that exercise it was decided that the extent of the area within which the development authorised by the DCO may be constructed, operated and maintained (referred to as the Order Limits) needed to be amended to reflect additional land required for the Project. The extent of the land required to implement the A5025 Off-line Highway Improvements was also finalised and formed part of this consultation. These refinements did not amend the extent of the proposed road construction itself, but are needed to other elements, such as drainage can be accommodated and accessed.

3.3 DESIGN PRINCIPLES

DELIVERING GOOD DESIGN

3.3.1 As set out in Volume 1 of the DAS [APP-407], the Planning Act (2008) places importance on good design. Policy relating to good design for energy infrastructure is set out in NPS EN-1 and policy relating to good design specifically for nuclear power generation is set out in NPS EN-6. These policies are set out in detail in the Planning Statement [APP-406].

3.3.2 While there is no hierarchy in the principles of good design, both NPS EN-1 and EN-6 recognise that the nature of energy infrastructure developments can limit the choice an applicant may have in respect of the visual appearance of buildings. For these reasons, the policies recognise that the achievement of good design goes beyond visual aesthetics and that the functionality of infrastructure is just as important. In this respect, the Planning Inspectorate needs to be satisfied that energy developments are functional and sustainable, and having regarding to regulatory and other constraints, are as attractive, durable and adaptable as possible. In making this assessment, paragraph 2.8.1 of EN-6 confirms that the need to ensure the safety and security of a nuclear station and to control the impacts of its operation, should be given substantial weight in determining whether or not the principles of "good design" under EN-1 have been achieved.

3.3.3 For the purposes of this DAS, policy relating to good design has been grouped into the six themes set out in Table 1. Grouping them in this way does not seek to alter the meaning of policy and is applied to help demonstrate how the design principles in this chapter underpin the delivery of good design.

Table 1 Good design

GOOD DESIGN	CORRESPONDING THEME
The applicant should take into account functionality including fitness for purpose (NPS EN-1, Para 4.5.1). The need to ensure the safety and security of the power station, and the need to control the impacts of its operations, must be given substantial weight given the importance of these factors to the operation of a nuclear power station (NPS EN-6, Para 2.8.1). The GDA, site licensing and environmental permitting processes will consider certain aspects of design, which the IPC should not replicate (NPS EN-6, Para 2.8.4).	Functionality
Applying good design to nuclear power stations means giving substantial weight to the need to control the impacts of its operations (NPS EN-6, Para 2.8.3). Good design can act to mitigate the impacts of nuclear power stations, such as landscape and visual impacts (NPS EN-6 Para 2.8.3). Good design can help mitigate adverse impacts through use of appropriate technologies. (NPS EN-1, Para 4.5.2).	Mitigation
The appearance should demonstrate good aesthetic as far as possible (NPS EN-1, Para 4.5.3) Energy infrastructure developments should be sustainable and, having regard to regulatory and other constraints, should be as attractive, durable and adaptable as they can be (NPS EN-1, Para 4.5.3). The applicant should take into account aesthetics, including its contribution to the quality of the area in which it would be located (NPS EN-1, Para 4.5.3). The applicant may not have any or very limited choice in the physical appearance of some energy infrastructure (NPS EN-1, Para 4.5.3).	Appearance
Applying good design to energy projects should produce sustainable infrastructure that is sensitive to place (NPS EN-1, Para 4.5.3). There may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3).	Character
Applying good design to energy projects should produce sustainable infrastructure that is efficient in the use of natural resources and energy used in their construction and appearance. (NPS EN-1, Para 4.5.3).	Sustainability
For some structures where the functional requirements may change over the lifetime of the structure, such as sea defences, they should be capable of being adapted if the need were to arise in future without major re-design or significant physical disruption (NPS EN-6, Para 2.8.2).	Adaptability

REF.	DESIGN PRINCIPLES (FOR APPROVAL)	GOOD DESIGN THEME(S) (ILLUSTRATIVE)	JUSTIFICATION (ILLUSTRATIVE)
General design principles			
1.	Measures must be incorporated in the design such as agricultural underpasses, bridges, trackways, private means of access and cattle handling facilities (termed accommodation works) to maintain access for farm vehicles and animals.	Mitigation	Reduces adverse socio-economic effects on agricultural interests
2.	The detailed design for watercourse culverts will incorporate either mammal ledges or secondary mammal access pipes.	Mitigation	Reduces adverse effects on mammals due to severance / fragmentation.
3.	Maintenance of existing access for residential properties and local businesses must be provided where possible, and incorporation of replacement points of access must be provided, where necessary, to agricultural landholdings from the bypasses and bend improvements.	Mitigation	Reduces adverse socioeconomic effects on residents, local businesses and agricultural interests by ensuring continued access to properties where possible.
4.	Replacement means of access for residential properties, businesses and community services must be provided where necessary (in cases where existing access cannot be maintained) through the moderation of roads and junctions, and the re-use of existing sections of carriageway.	Mitigation	Reduces adverse socioeconomic effects on residents, local businesses and local services and agricultural interests where access cannot be maintained by ensuring new accesses to properties are provided.
5.	Permanent operational lighting to be designed to control light spill, within safe levels for road users.	Mitigation Appearance Character	Reduces adverse ecological effects whilst ensuring the safety of road users. Reduces adverse visual effects of highway during night-time hours.
6.	DELETED		
7.	As far as practicable, the lighting design will reduce spill into surrounding areas, avoiding sensitive ecological receptor, where not constrained by highway safety.	Mitigation Appearance Character	Reduces adverse ecological effects as a result of severance and/or disturbance. Reduces visual intrusion of highway during night-time hours.
8.	Lighting will only be proposed at the new roundabout at Valley; for a 105m length of road adjacent to the new roundabout at Valley; and at the new roundabout at the Power Station Access Road. Limited lighting at these locations would reduce adverse effects on night-time views and the tranquillity of the AONB.	Mitigation Appearance Character	Reduces adverse ecological as a result of severance and/or disturbance. Reduces visual intrusion of highway during night-time hours.
9.	Slackening of earthwork slopes to the south of the viaduct at section 3 must be provided to reduce adverse effects on landscape character and views from adjacent residential properties and the AONB, wherever practicable against existing land constraints.	Mitigation Appearance Character	Reduces adverse effects on landscape character and views from adjacent residential properties and the AONB. Ensures design of these earthwork slopes are sensitive to their location.
10.	Noise barriers must be constructed along the eastern and western side of section 3, including the Afon Alaw crossing.	Mitigation	Reduces adverse noise effects on residential properties and other sensitive receptors in proximity to section 3.
11.	The colour of the noise barriers must be selected to reduce visual effects.	Appearance Character	Contributes towards the creation of an attractive development whilst having regard to regulatory and other constraints. Ensures the use of contrasting colours remains sensitive to place.
12.	Low Noise Road Surfacing (LNRS) will be used on the new bypasses at Llanfaethlu (section 5), Llanfachraeth (section 3), Cefn Coch (section 7) and the Power Station access junction (section 9).	Mitigation	Reduces adverse noise effects on residential properties and other sensitive receptors close to these sections.
13.	The alignment of section 7 of the A5025 Off-line Highway Improvements must be designed to avoid ancient woodland.	Sustainability Appearance Character	Avoids the loss of an important natural resource. Helps to preserve the character and appearance of the surrounding area.

REF.	DESIGN PRINCIPLES (FOR APPROVAL)	GOOD DESIGN THEME(S) (ILLUSTRATIVE)	JUSTIFICATION (ILLUSTRATIVE)
14.	With the exception of construction works to tie-in the Off-line Highway within the the lay-by on the existing A5025 east of Llanfaethlu, which would result in the loss of a small group of trees and grass verge area within Anglesey AONB, the alignment of section 5 of the A5025 Off-line Highway Improvements will be designed to avoid the AONB.	Appearance Character	Results in a design that is more sensitive to place by minimising physical impacts. Avoids direct effects on the AONB and thus reduces potential for adverse landscape and visual effects. Helps to preserve the character and appearance of the surrounding area.
15.	DELETED		
16.	Road alignments must work with existing land uses and agricultural field patterns to reduce field severance, where possible.	Sustainability	Reduces adverse socioeconomic effects on agricultural interests by reducing field severance and ensuring the efficient use of an important natural resource.
Landscape design principles			
17.	Existing features such as walls and hedgerows along the existing A5025 and minor roads at junctions will be retained where possible, and not constrained by highway safety.	Character Sustainability	Reduces adverse landscape and visual effects. Results in a design that is more sensitive to place by minimising physical impacts. Efficient in the use of natural resources used in construction.
18.	A landscape planting strategy must visually screen and contain roadside features, improve landscape integration and reinstate field boundaries using hard and soft landscaping, wherever practicable.	Mitigation Character	Reduces landscape and visual effects and contributes towards the creation of an attractive development whilst having regard to regulatory and other constraints.
19.	Formal planting along the existing A5 route at Valley should be proposed, to improve the sense of arrival into the village.	Character Appearance	Contributes towards the creation of an attractive development whilst having regard to regulatory and other constraints.
20.	New tree and scrub planting must be used to restore characteristic field patterns.	Mitigation Character Appearance	Contributes towards the creation of an attractive development which respects the local character whilst having regard to regulatory and other constraints.
21.	Slackening of earthwork slopes at Llanfaethlu off-line section must be proposed to reduce adverse effects on views from adjacent residential properties and provide integration with the surrounding landform and reduce impacts on the setting of Capel Soar Standing Stone Scheduled Monument (Asset 146; high value), Siop Soar Listed Building (Asset 149; medium value) and the Black Lion Inn Listed Building (Asset 150; medium value) at Llanfaethlu, wherever practicable against existing land constraints.	Mitigation Character Appearance	Contributes towards the creation of an attractive development which respects the local character whilst having regard to regulatory and other constraints.
22.	Planting and seeding along the A5025 Off-line Highway Improvements must be provided to visually screen and contain roadside features and reduce adverse effects on landscape character and views, where appropriate. In appropriate locations, planting of hedgerow boundaries using hard and soft landscaping should be provided to reflect hedgerows in the area.	Mitigation Appearance	Reduces adverse visual effects. Contributes towards the creation of an attractive development whilst having regard to regulatory and other constraints.
23.	Boundary treatments should be in keeping with the local vernacular, for example, stone walls at Llanfaethlu.	Character Appearance	Contributes towards the creation of an attractive development which is sensitive to the character of its location, whilst having regard to regulatory and other constraints.
24.	Where stone walls and cloddiau require removal as part of construction, their loss will be mitigated by re-building them using original materials where practicable in order to maintain historic field pattern.	Mitigation Character Appearance Sustainability	Reduces adverse landscape and visual impacts. Demonstrates a sensitivity to place through consistent use of materials. Encourages the efficient use of natural resources and energy through reuse and recycling.

REF.	DESIGN PRINCIPLES (FOR APPROVAL)	GOOD DESIGN THEME(S) (ILLUSTRATIVE)	JUSTIFICATION (ILLUSTRATIVE)
25.	Field boundaries must be reinstated through the use of fencing and hedgerows and redundant or commercially unviable parcels of land must be incorporated into the design.	Mitigation Character Appearance Sustainability	Reduces adverse visual effects. Contributes towards the creation of an attractive development which is sensitive to the character of its location, whilst having regard to regulatory and other constraints. Demonstrates efficient use of land.
26.	The area at Llanfachraeth between the Afon Alaw and its southern side channel where the new viaduct crosses should be enhanced for biodiversity gain. The habitat should be enhanced to open up and diversify the marginal habitat. Shrubs and wet woodland species should be included with the planting and further channels or ponds should be created to increase opportunity for water vole. GCN refugia/hibernacula should also be created within these areas.	Mitigation Sustainability	Provision of enhancement in accordance with Environment (Wales) Act 2016. Demonstrates good design by taking opportunities for biodiversity improvement.
27.	Shrub planting on embankment slopes must be provided to soften their appearance at Capel Soar to reduce visual intrusion on the setting of Chapel Soar Standing Stone Scheduled Monument.	Mitigation Character Appearance	Reduces adverse visual effects. Contributes towards the creation of an attractive development which is sensitive to the character of its location, whilst having regard to regulatory and other constraints.
28.	Environmentally sensitive attenuation pond design will be provided to integrate the features into the surrounding landscape.	Mitigation Character Appearance	Reduces risk of flooding. Reduces adverse visual effects. Demonstrates a sensitivity to place through integration.
29.	Planting to be proposed around attenuation ponds to help integrate them into the surrounding landscape.	Character Appearance	Reduces adverse visual effects. Demonstrates a sensitivity to place through integration.
30.	Softening of the shapes of attenuation pond where physical constraints allow to help integrate the features into the surrounding landscape. This includes pond B at Llanfaethlu and ponds A and C at Cefn Coch.	Character Appearance	Reduces adverse visual effects. Demonstrates a sensitivity to place through integration.
31.	The A5025 Off-line Highway Improvements must be designed to reduce the potential effects of the development on wetland habitats which may have groundwater dependency by keeping the footprint of the development as far from such wetland habitats as practicable.	Mitigation Sustainability	Reduces adverse effects on surface water and groundwater.
32.	At Llanfaethlu, a new pond and terrestrial habitat will be created (the total area of habitat created will be approximately 1.8 ha). At Llanfachraeth, a new pond and terrestrial habitat will also be created (approximately 3.5 ha). Mitigation at both locations will also consist of planting shrubs and wet woodland species, and creating hibernacula (log piles). Horizon will follow the advice and guidelines set out in the Great Crested Newt Conservation Handbook (Langton, T. E., Beckett, C. L. & Foster, J. P., 2001. Great Crested Newt Conservation Handbook. Halesworth: Froglife).	Mitigation Character	Reduces adverse terrestrial and freshwater ecology effects. Provides alternative breeding location for GCN. Demonstrates a sensitivity to place through choice of wet woodland species.
33.	Reinstatement of areas used during construction works will be undertaken in accordance with the principles of the Volume 3: A5025 Off-line Highway Improvements DAS.	Character Appearance	Contributes towards the creation of an attractive development which is sensitive to the character of its location, whilst having regard to regulatory and other constraints.
34.	The area to the northwest of the new alignment of the A5025 at Valley will be enhanced for biodiversity gain. A new ditch will be created through the area using the advice and guidelines set out within publications such as Creating Ponds for Water Voles. The new ditch will be profiled in such a way as to enable marginal planting at the ditch edge, shrub planting within 1m to 2m of water's edge (but avoiding shading) and the provision of GCN refugia/hibernacula. The total proposed enhancement area at Valley will be approximately 2.0 ha.	Mitigation	Provision of enhancement in accordance with Environment (Wales) Act 2016.

REF.	DESIGN PRINCIPLES (FOR APPROVAL)	GOOD DESIGN THEME(S) (ILLUSTRATIVE)	JUSTIFICATION (ILLUSTRATIVE)
35.	The area at Llanfachraeth between the Afon Alaw and its southern side channel where the new viaduct crosses it will be enhanced for biodiversity gain. The habitat will be enhanced to open up and diversify the marginal habitat. Shrubs and wet woodland species will be included with the planting and further channels or ponds will be created to increase opportunity for water vole. GCN refugia / hibernacula will also be created within these areas in accordance with the advice set out in the Great Crested Newt Conservation Handbook (Langton, T. E., Beckett, C. L. & Foster, J. P., 2001. Great Crested Newt Conservation Handbook. Halesworth: Froglife). The total proposed enhancement area at Llanfachraeth will be approximately 0.5ha.	Mitigation	Reduces adverse terrestrial and freshwater ecology effects. Demonstrates good design by taking opportunities for biodiversity improvement.
36.	Sections of shared use footway/cycleway must be provided through the Power Station Access junction and east of the Power Station Access junction to link to the shared use footway/cycleway provided as part of the A5025 Offline Highway Improvements.	Mitigation Sustainability	Addresses lack of safe and appropriate access for pedestrians and cyclists. Improves opportunities for use of sustainable transport modes.
37.	Sections of shared use footway/cycleway must be provided to enable safe access around the roundabout within section 1 of the proposed scheme, and the footway which is currently located along the A5 between Caergeiliog and Valley will be designated as shared use.	Mitigation Sustainability	Addresses lack of safe and appropriate access for pedestrians and cyclists. Improves opportunities for use of sustainable transport modes.
38.	Sections of shared use footway/cycleway must be provided between the existing A5025 and the bypass within section 1 of the A5025 Off-line Highway Improvements.	Mitigation Sustainability	Addresses lack of safe and appropriate access for pedestrians and cyclists. Improves opportunities for use of sustainable transport modes.
39.	A section of shared use footway/cycleway must be provided within section 5 of the A5025 Off-line Highway Improvements between the Black Lion Inn and the main community at Llanfaethlu.	Mitigation Sustainability	Addresses lack of safe and appropriate access for pedestrians and cyclists. Improves opportunities for use of sustainable transport modes.
40.	Drainage must be designed to match greenfield runoff rates with attenuation provided for events up to and including the 1 in 100 year storm event (including a 30% allowance for the effects of climate change).	Mitigation Adaptability	Reduces risk of flooding and improves resilience of proposals against climate change.
41.	To address the impact to flood flow paths from the A5025 viaduct and embankments at section 3, minor ground re-profiling upstream of the viaduct will be used to manage flood waters associated with the A5025 Off-line Highway Improvements without increasing flood risk elsewhere.	Mitigation	Reduces adverse effects on flood depth at a residential property.
42.	The drainage design will collect the rainwater runoff from the paved areas and attenuate it prior to discharge. The drainage design will reduce impacts on water quality by incorporating Sustainable Drainage System (SuDS) features and silt traps, which will allow retention of sediment prior to the drainage outfall into watercourses. The SuDS features and drainage outfalls will be managed and maintained to appropriate Environmental Quality Standards.	Mitigation	Reduces adverse water quality effects.
43.	Floodplain compensatory storage has been incorporated into the design at section 1 (Valley). This compensatory storage will not impact on the highway drainage scheme. Appropriate design of compensation flood storage will be undertaken and agreements with key stakeholders and landowners will be implemented.	Mitigation Adaptability	Reduces risk of flooding and improves resilience of proposals against climate change.
44.	A landscape management strategy will be implemented for both hard and soft landscaping for a period of five years (excluding third party damage), following the completion of the works, to ensure successful establishment of proposed landscaping and long-term viability of planting. In the event that these inspections identify that planting has not established, replacement planting on a like for like basis will be undertaken at the first available planting season.	Mitigation Sustainability	Improves quality of landscape over time.

PART B: ILLUSTRATIVE DESIGN PROPOSALS

4 ENVIRONMENTAL SUSTAINABILITY

4.1 SUSTAINABLE DESIGN
4.2 WATER
4.3 NATURAL HABITATS
4.4 WASTE
4.5 EXTERNAL LIGHTING PROPOSALS
4.6 LANDSCAPING

Environmental sustainability

4.1 SUSTAINABLE DESIGN

4.1.1 The overarching approach to sustainable design and construction of the Wylfa Newydd DCO Project is set out in Volume 1 of the DAS [APP-407] and in the Sustainability Statement submitted in support of this application [APP-426]. This chapter outlines environmental sustainability measures that would specifically apply to the A5025 Off-line Highway Improvements element of the Wylfa Newydd DCO Project.

4.1.2 This chapter summarises how the design of the A5025 Off-line Highway Improvements has taken into account sustainability during the design development process to date. Please refer to the Sustainability Statement and Volume 1 of the DAS for further details. Appendix 1-6 of Volume 3 of the DAS provides a summary of sustainability guidance from national and local planning guidance that is relevant to the Associated Development and Off-Site Power Station Facilities proposals. This chapter of the report describes how the development has incorporated good practice sustainable design measures in relation to each of these themes and includes recommended next steps to ensure that sustainability is embedded in the development going forward.

4.2 WATER

4.2.1 Strategic Policy PS6 of the JLDP states that in order to adapt to the effects of climate change, proposals will only be permitted where it is demonstrated with appropriate evidence that they have been located away from flood risk areas.

4.2.2 To prevent increases in flooding from the introduction of new impermeable areas, drainage has been designed to match greenfield runoff rates with attenuation provided for events up to and including the 1 in 100 year event (plus a 30% allowance for the effects of climate change). Ponds would be sized to ensure attenuation to greenfield runoff rates, whilst maintenance will reduce the chance of an increase in flood risk as a result of a blockage. The design of these structures aims for a neutral effect or reduction in flood risk. Therefore, with the application of this mitigation, the magnitude of change associated with new impermeable areas is considered to be neutral and the residual effect is therefore neutral.

4.2.3 Floodplain compensatory storage has been incorporated into the design at section 1 (Valley). This compensatory storage will not impact on the highway drainage scheme. Appropriate design of compensation flood storage will be undertaken and agreements with key stakeholders and landowners will be implemented.

4.2.4 On the eastern side of the viaduct, in between Afon Alaw and its tributary (section 3), a flood compensation would be constructed. The required depth of this compensation area will be determined through further consultation with Natural Resources Wales.

4.2.5 Indicative cross sections of a relatively dry attenuation pond and an attenuation pond with permanent water is provided below.

4.3 NATURAL HABITATS

4.3.1 Strategic Policy PS19 of the JLDP states that when permitting an application, the Planning Authorities will ensure that they have appropriate regard to the relative significance of international, national or local designations in considering the weight to be attached to acknowledged interests, ensuring that any international or national responsibilities and obligations are fully met in accordance with National Policy.

4.3.2 The land on which the A5025 Off-line Highway Improvements is proposed has been surveyed by a suitably qualified ecologist to identify any features of ecological value and protection and mitigation measures required. The findings and recommendations have been considered in the development of the design of the A5025 Off-line Highway Improvements

4.3.3 Construction has the potential to affect ecological features through the loss of habitat as a result of site clearance, earthworks and excavation activities and the establishment of landscaping.

4.3.4 The following measures have been embedded within the design of the A5025 Off-line Highway Improvements to minimise the effects on ecological features:

- The A5025 Off-line Highway Improvements have been designed taking into consideration habitats, which has avoided works within the areas of Ancient Woodland at Cefn Coch, and minimised the loss of hedgerows, walls and trees more generally;
- All of the watercourse crossings associated with sections 1, 3, 5 and 7 have been designed to reduce the potential for effects on species and habitats, for example through the incorporation of dry ledges for mammals;
- Indicative landscaping measures in the form of different planting types have been included in the design, such as hedgerows and trees, and other landscape features like stone walls;
- The design and construction of appropriate surface water drainage systems would collect and attenuate the drainage prior to discharge;
- The incorporation of a bridge (viaduct) across the Afon Alaw to reduce the potential for effects on ecological species and habitats associated with this feature;
- The application of low noise road surfacing within section 3, 5, 7 and the Power Station Access Road Junction to reduce noise levels experienced in Llanfachraeth generated by the interaction of vehicle tyres and the pavement surface; and
- The inclusion of a noise attenuation barrier of varying height along parts of section 3 to further reduce noise levels experienced in Llanfachraeth.

4.3.5 No significant adverse effects have been identified for terrestrial and freshwater ecology. The provision of additional mitigation at Llanfachraeth and Llanfaethlu to mitigate for the slight adverse effect on GCN is considered to have the potential to benefit the GCN populations in these localities. The habitats (terrestrial and aquatic) provided are considered to be of a higher quality than those lost. Also the additional land would be managed (in accordance with any EPSL (see Appendix G9-11 [APP-335]) in perpetuity by a third party agreed with NRW. This provides greater certainty that the improved habitat conditions available to these populations will create conditions to support the achievement of favourable conservation status of the Anglesey GCN population. Therefore, the residual effect on GCN is considered to be slight positive.

4.4 WASTE

4.4.1 The handling, storage and disposal of waste would be managed by the appointed contractor adhering to the principles in the CoCP [APP-414].

4.4.2 Consideration will be given to waste minimisation using Horizon's principles of waste hierarchy minimisation (in decreasing order of preference):

- Prevention and minimisation;
- Preparing for re-use;
- Recycling;
- Other recovery; and
- Disposal

4.5 EXTERNAL LIGHTING PROPOSALS

4.5.1 The design has considered the context that the Isle of Anglesey is working towards a Dark Sky Reserve Status. Additional context is provided by Policy PCYFF 2 in the JLDP and the principles of paragraph 5.14.5 of TAN 12 seeks to minimise artificial light pollution. Consideration has been given to the presence of existing road lighting and proposed lighting has been carefully planned to minimise light spill onto adjacent and environmentally sensitive areas, water courses, hedgerows and other habitats.

4.5.2 Lighting will only be proposed at the new roundabout at Valley for a 105m length of road adjacent to the new roundabout at Valley, and at the new roundabout at the Power Station Access Road. Limited lighting at these locations would reduce adverse effects on night-time views and the tranquility of the AONB.

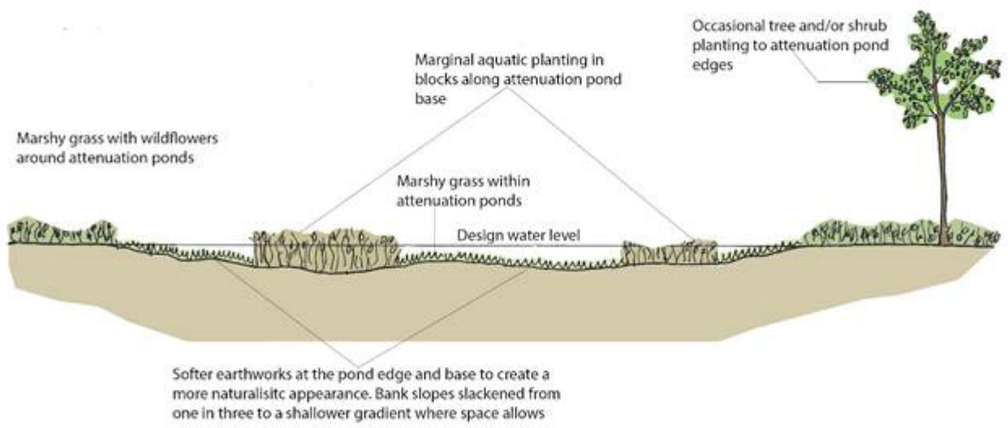


Figure 6 Indicative cross section of relatively dry attenuation pond

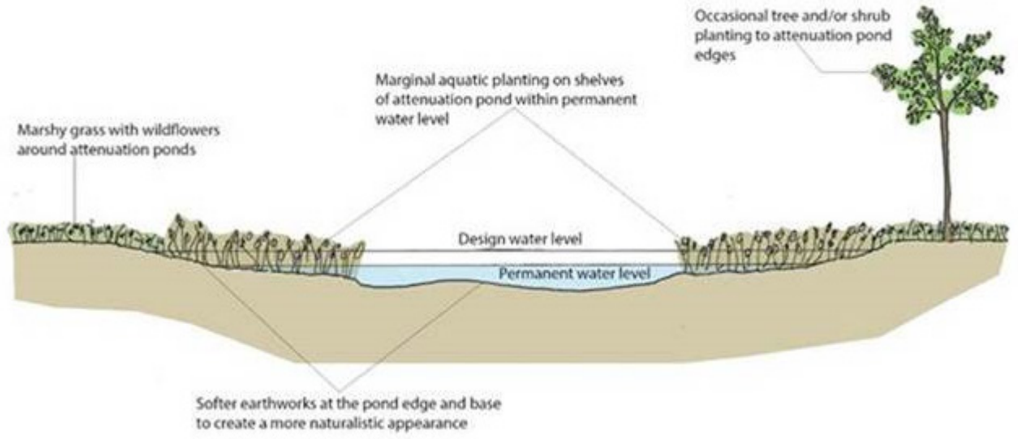


Figure 7 Indicative cross section of attenuation pond with permanent water

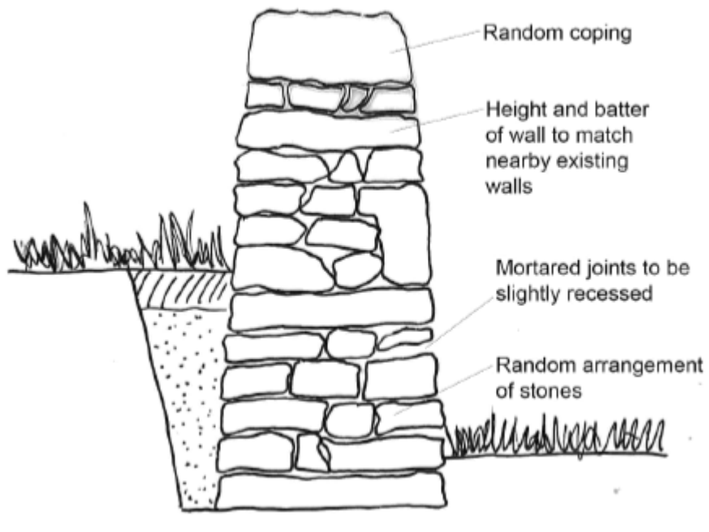


Figure 8 Sketch of proposed stone wall cross section

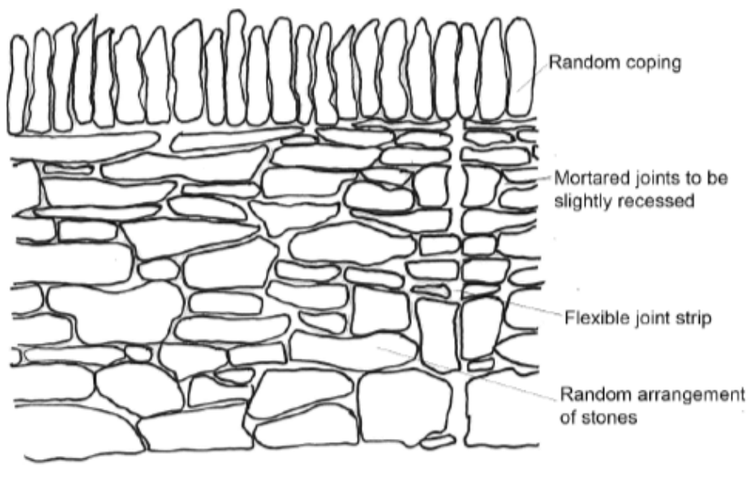


Figure 9 Sketch of proposed stone wall elevation

4.6 LANDSCAPING

4.6.1 Planning policy within the JLDP aims to ensure that high quality design and construction takes into account the overall natural, built environment and landscape context of the site.

4.6.2 Strategic Policy PS5 of the JLDP states that development will be supported where proposals promote high standards of design that make a positive contribution to the local area. Furthermore, Policy PCYFF3 confirms that proposals will be expected to demonstrate high quality design which fully takes into account the natural, historic and built environment context.

4.6.3 The A5025 Off-line Highway Improvements have been carefully designed to minimise impacts on the landscape character of each site and surrounding areas. Horizon has sought to protect trees, hedgerows, stone walls and other traditional landscape features where possible. If vegetation and grass verges require removal, then mitigation would be provided. Like-for-like vegetation replacement at a particular location may not always be possible due to high visibility splay requirements. Replacement vegetation would therefore be provided as close as possible to the original vegetation location. Where possible, existing hedgerows marked for removal would be translocated to a new position at the site clearance stage. Grass verges would be re-seeded with a typical highway verge mix.

4.6.4 Replacement stone walls (as illustrated in figures 8 and 9 above) would be constructed to match existing boundary features, using original materials were possible. Stones would be replaced in a similar orientation to replicate microhabitat for lichens, mosses and liverworts.

4.6.5 Plant species have been selected to complement and integrate with the existing landscape character in adjacent areas including the existing A5025.

4.6.6 The plant species can be grouped in terms of grassland, trees and shrub blocks, hedgerows, individual trees and water features, and the typical species to be considered are listed under each group heading below.

PLANTING SELECTION

GRASSLAND

4.6.7 Four types of grassland have been considered, namely amenity grassland, species rich grassland, open grassland and marshy grassland.

4.6.8 The typical species associated with these are as follows:

Amenity grassland

- *Agrostis castellana* (Highland browntop bentgrass);
- *Agrostis capillaris* (AberRoyal browntop bentgrass);
- *Festuca rubra subsp. rubra* (Corail creeping red fescue);
- *Festuca rubra subsp. commutata* (Joanna chewings fescue);
- *Lolium perenne* (Cadix perennial ryegrass);
- *Poa pratensis* (Evora smooth-stalked meadow grass); and
- *Trifolium repens* (Aber Ace miniature white clover).

Species rich grassland

Grass species

- *Agrostis capillaris* (browntop bentgrass);
- *Anthoxanthum odoratum* (sweet vernal-grass);
- *Briza media* (quaking grass);
- *Cynosurus cristatus* (crested dogstail);
- *Festuca ovina* (sheep's fescue);
- *Festuca rubra* (red fescue);
- *Phleum bertolonii* (smaller cat's-tail); and
- *Trisetum flavescens* (yellow oat-grass).

Wildflower species

- *Achillea millefolium* (yarrow);
- *Centaurea nigra* (common knapweed);
- *Daucus carota* (wild carrot);
- *Galium verum* (lady's bedstraw);
- *Leucanthemum vulgare* (oxeye daisy);
- *Prunella vulgaris* (selfheal);
- *Ranunculus acris* (meadow buttercup);
- *Rhinanthus minor* (yellow rattle);
- *Rumex acetosa* (common sorrel); and
- *Silene dioica* (red campion).

Open grassland

- *Agrostis capillaris* (brown top bent);
- *Festuca longifolia* (hard fescue);
- *Festuca rubra* (creeping red fescue);
- *Lolium perenne* (perennial ryegrass);
- *Poa pratensis* (smooth stalked meadow grass); and
- *Trifolium repens* (white clover).

Marshy grassland

Grass species:

- *Agrostis capillaris* (browntop bent);
- *Alopecurus pratensis* (meadow foxtail);
- *Anthoxanthum odoratum* (sweet vernal grass);
- *Briza media* (quaking grass);
- *Cynosurus cristatus* (crested dogstail);
- *Deschampsia cespitosa* (tufted hair-grass);
- *Festuca rubra* (creeping red fescue);
- *Hordeum secalinum* (meadow barley);
- *Schedonorus pratensis* (meadow fescue)

Wildflower species:

- *Achillea millefolium* (yarrow);
- *Achillea ptarmica* (sneezewort);
- *Betonica officinalis* (betony);
- *Centaurea nigra* (common knapweed);
- *Filipendula ulmaria* (meadowsweet);
- *Galium verum* (lady's bedstraw);
- *Geum rivale* (water avens);
- *Leucanthemum vulgare* (oxeye daisy);
- *Lotus pedunculatus* (greater birdsfoot trefoil);
- *Plantago lanceolata* (ribwort plantain);
- *Primula veris* (cowslip);
- *Prunella vulgaris* (selfheal);
- *Ranunculus acris* (meadow buttercup);
- *Rhinanthus minor* (yellow rattle);
- *Rumex acetosa* (common sorrel);
- *Sanguisorba officinalis* (great burnet);
- *Silene flos-cuculi* (ragged robin);
- *Succisa pratensis* (devil's-bit scabious); and
- *Vicia cracca* (tufted vetch).

TREE AND SHRUB BLOCKS

4.6.9 Four types of tree and/or shrub planting have been considered, namely linear belt of trees and shrubs, shrubs with intermittent trees, native shrubs and ornamental shrubs.

4.6.10 The typical species associated with these are as follows:

Linear belt of trees and shrubs

- *Alnus glutinosa* (alder);
- *Corylus avellana* (hazel);
- *Crataegus monogyna* (hawthorn);
- *Ilex aquifolium* (holly);
- *Prunus spinosa* (blackthorn);
- *Quercus petraea* (sessile oak);
- *Salix caprea* (goat willow);
- *Sambucus nigra* (elder); and
- *Sorbus aucuparia* (rowan).

Shrubs with intermittent trees

- *Alnus glutinosa* (alder);
- *Corylus avellana* (hazel);
- *Crataegus monogyna* (hawthorn);
- *Ilex aquifolium* (holly);
- *Prunus spinosa* (blackthorn);
- *Quercus petraea* (sessile oak);
- *Salix caprea* (goat willow);
- *Sambucus nigra* (elder); and
- *Sorbus aucuparia* (rowan).

Native shrubs

- *Crataegus monogyna* (hawthorn);
- *Ilex aquifolium* (holly);
- *Prunus spinosa* (blackthorn);
- *Rosa canina* (dog rose);
- *Rubus fruticosus* (bramble);
- *Salix caprea* (goat willow); and
- *Sambucus nigra* (elder).

Ornamental shrubs

- *Cornus sanguinea* 'Midwinter Fire' (dogwood);
- *Potentilla fruticosa* 'Elizabeth' (shrubby cinquefoil);
- *Rosa rugosa* 'Frau Dagmar Hastrup' (shrubby rose); and
- *Viburnum tinus* 'Eve Price' (evergreen viburnum).

HEDGEROWS

4.6.11 Two types of hedgerow planting have been considered, namely native hedgerows and native hedgerows with trees.

4.6.12 The typical species associated with these are as follows:

Native hedgerows

- *Corylus avellana* (hazel);
- *Crataegus monogyna* (hawthorn);
- *Ilex aquifolium* (holly);
- *Prunus spinosa* (blackthorn);
- *Rosa canina* (dog rose);
- *Salix caprea* (goat willow); and
- *Sambucus nigra* (elder).

Native hedgerow with trees

- *Alnus glutinosa* (alder);
- *Betula pendula* (silver birch);
- *Corylus avellana* (hazel);
- *Crataegus monogyna* (hawthorn);
- *Ilex aquifolium* (holly);
- *Prunus spinosa* (blackthorn);
- *Quercus petraea* (sessile oak);
- *Rosa canina* (dog rose);
- *Salix caprea* (goat willow);
- *Sambucus nigra* (elder); and
- *Sorbus aucuparia* (rowan).

Individual trees

Individual tree planting has been considered with typical species listed below:

- *Alnus glutinosa* (alder);
- *Carpinus betulus* 'Fastigiata' (fastigiate hornbeam);
- *Quercus petraea* (sessile oak); and
- *Sorbus aucuparia* (rowan).

WATER FEATURES

4.6.13 Two types of waterbody planting have been considered, namely waterbody and associated planting and water pollution control measures.

4.6.14 The typical species associated with these are as follows:

Waterbody and associated planting

- *Carex* species (sedges) such as *Carex paniculata* (greater tussock-sedge);
- *Sparganium erectum* (branched bur-reed); and
- *Glyceria maxima* (reed sweet-grass)

Water pollution control measures

- *Butomus umbellatus* (flowering rush);
- *Cardamine pratensis* (lady's smock);
- *Carex rostrate* (bottle sedge);
- *Carex pseudocyperus* (cyperus sedge);
- *Filipendula ulmaria* (meadowsweet);
- *Juncus effusus* (soft rush); and
- *Lychnis flos-cuculi* (ragged robin).

4.6.15 The proposed illustrative landscape scheme is shown in Appendix A.

LANDSCAPE MANAGEMENT

4.6.16 A landscape management strategy will be implemented for both hard and soft landscaping for a period of five years (excluding third party damage), following the completion of the works, to ensure successful establishment of proposed landscaping and long-term viability of planting. In the event that these inspections identify that planting has not established, replacement planting on a like for like basis will be undertaken at the first available planting season.

4.6.17 Planting to be established as close to the completion of highway works as possible, in the next available planting/seeding season to reduce the amount of time bare earth is visible and enable establishment of vegetation.

LANDSCAPE	LANDSCAPE MANAGEMENT RECOMMENDATION	GENERIC MANAGEMENT
Grassland (including amenity grassland, species rich grassland, marshy grassland and open grassland)	Amenity grassland will be established in road verge areas to provide grassland which provide visual interest. The species rich and marshy grassland areas would create a diversity of grasses and wildflower species that are appropriate to the site to develop and create greater biodiversity. This would provide a variety of wildflower species to provide colour, form, texture, scale and variety. Open grassland would be used to create a grass sward, which would be managed to achieve its intended landscape integration function.	Grass cutting Weed control Litter collection
Tree and shrub blocks (including linear belt of trees and shrubs, shrubs with intermittent trees, native shrubs and ornamental shrubs)	Retain and replenish where required to keep cover. Maintain shrub layer for low-level screening. Mix of species to reflect local landscape character, particularly when adjoining other linear features. Provide seasonal colour and variety in plant form. Retain as a continuous feature to provide wildlife corridors to other planted areas on and off-site.	Coppice Pruning Thinning Felling Treatment of arising Weed control Inspection/removal of tree stakes and shelters
Hedgerows (including native hedgerows and native hedgerows with trees).	Use same form of local hedgerow management to integrate with local landscape. Allow framing of views across to wider landscapes. Encourage a variety of species to enhance wildlife corridors. Ensure links between adjacent habitats. Trees allowed to grow to full height to provide intermittent screens.	Pruning Hedge cut Weed control Treatment of arisings Replant gaps Accommodate trees when cutting Inspection/removal of tree stakes
Individual trees	To ensure the successful establishment of trees appropriate to the location, which are visually attractive and enhance nature conservation value.	Pruning Weed control Inspection/ removal of tree stakes
Water feature planting (including waterbody and associated planting and water pollution control measures)	To establish marginal aquatic plants in the attenuation ponds and along water vole enhancement area ditches which provide ecological diversity and a food source.	Weed control

Table 2 Indicative landscape management table

5 COMMUNITY SAFETY

5.1 COMMUNITY SAFETY

Community safety

5.1 COMMUNITY SAFETY

A5025 SAFETY

5.1.1 A key objective of the A5025 Off-line Highway Improvements is to upgrade the route, both in terms of standard of construction and road geometry, such that it can support increased levels of traffic, and improve safety and accessibility.

5.1.2 Working areas would temporarily affect locations where PRoW meet the existing carriageway. In order to maintain safety during the works, temporary closures to affected PRoW would be sought through the DCO.

5.1.3 Short lengths of new cycle paths are proposed to segregate motorised road users from pedestrians, cyclists and horse riders.

COMMUNITY

5.1.4 It is intended that there will be community involvement officers for highway improvements who will have detailed knowledge about the construction work, how it will be undertaken and will be best placed to address any queries or concerns.

5.1.5 The A5025 Off-line Highway Improvements have been prepared taking into account the potential effects on pedestrian and vehicular traffic matters, PRoW, cycling and accessibility of vehicular access. Horizon has limited the effects on PRoW and NCNs as far as possible and proposes a Code of Construction Practice [APP-414] to manage footpath closures and limit adverse impacts as far as possible.

6 ACCESSIBILITY AND MOVEMENT

Accessibility and movement

6.1.1 It is expected that the majority of workforce for the A5025 Off-line Highway Improvements will be from the Anglesey and North Wales area and will commute on a daily basis from their usual place of residence and not require temporary accommodation during these works. The construction workforce for the A5025 Off-line Highway Improvements would consist of a maximum of 211 workers at any one time.

6.1.2 Vehicles accessing the A5025 in association with the A5025 Off-line Highway Improvements will utilise the A5025 to Valley and the A55 thereafter.

6.1.3 PRoW join and cross the A5025 between the Existing Power Station and Valley, and many of them form a wider network of routes that connect local communities and settlements. The only formal cycle provision is the National Cycle Network (NCN) Route 566 (the Copper Trail) and NCN Route 5, which cross the A5025 at Tregele and Llanynghenedl respectively. The design has sought to avoid physical changes to PRoW and private accesses by retaining existing access arrangements wherever possible and, where effects are unavoidable, by providing new or modified accesses such as diversions.

6.1.4 A private means of access (PMA) is typically access to premises that is not part of the highway network itself. All PMAs along the A5025 have been assessed to enable Horizon to incorporate appropriate designs.

6.1.5 In section 1, a PMA in the form of a southern arm off the roundabout would provide direct access to the existing freight yard railway spur from the junction. An existing gated PMA on the southern side of the A5 would be retained as part of the design to provide continued access to land adjacent to the freight yard. A new PMA would be created on the northern side of A5, to the west of the new roundabout junction, to replace an existing field access. A PMA would be created on the eastern side of the new section of road, to provide a private field access to a severed field.

6.1.6 In section 5, several PMAs are to be provided to maintain access to private land on either side of the bypass.

6.1.7 In section 7, a number of PMAs would be affected by the proposed bypass and these would be replaced or improved as part of the works. Refer to chapter G1 of the ES [APP-304] for full details.

7 POST OPERATION

Post operation

7.1.1 Following completion of the A5025 Off-line Highway Improvements, areas of land temporarily used during construction would be returned to landowners in a condition comparable to that at the start of the works.

7.1.2 On completion, the compound areas would be reinstated and handed back to the relevant landowners for agricultural use. Sections of redundant carriageway that would no longer be required would be broken up and covered with topsoil and grass seeded for landscaping purposes.

A APPENDIX A

ILLUSTRATIVE LANDSCAPE PROPOSALS

FIGURE 1

Proposed water vole enhancement and flood compensation area. Water vole enhancement to include a sinuous ditch and marginal planting

A5025

VALLEY

VALLEY CEMETERY

A5

10m

SEE INSERT A

SEE MAIN DRAWING

INSERT A

Hedgerow translocation prior to installation of Construction Compound. Hedgerow translocated back to original line on making good of Construction Compound

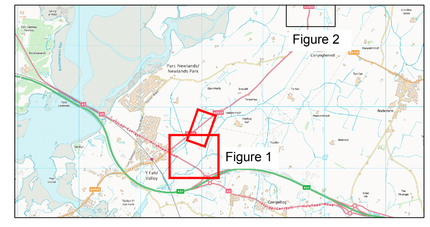
NOTES:
1. Planting and seeding mixes to be regional provenance.
2. For details of planting and seeding and LE7.1 proposed walls refer to the Design and Access Statement - Volume 3 - Associated Developments and Off-Site Power Station Facilities (Application Reference Number 8.2.3).

0 50 100 150 m

SCALE 1 : 1250

Legend

- 10m contours
- Existing vegetation
- Existing vegetation to be retained
- Existing surface waters
- Existing wall
- Existing wall to be retained
- Existing overhead line
- Public Right of Way
- LE1.1 Amenity grassland
- LE1.6 Open grassland
- LE2.4 Linear belt of native trees and shrubs
- LE2.5 Native shrubs with intermittent trees
- LE2.6 Native shrubs
- LE3.2 Ornamental shrubs
- LE4.2 Native hedgerow
- LE4.4 Native hedgerow with trees
- E3.2 Existing hedgerow marked for translocation
- E3.2 Temporary location for translocated hedgerow
- LE5.1 Individual trees
- LE6.4 Marshy grassland
- LE7.1 Proposed wall
- Proposed fence
- Proposed ditch
- Proposed 10m high lighting column



Function and element code legend

Landscape Elements		Environmental Functions	
Grassland	LE1	EFA	Visual screening
Native planting	LE2	EFB	Landscape integration
Hedgerows	LE4	EFC	Enhancing the built environment
Individual trees	LE5	EFD	Nature conservation and biodiversity
Wetland habitats	LE6	EFE	Visual amenity
Environmental Elements		EFG	Auditory amenity
Noise	E1	EFH	Water quality
Water	E2		
Nature conservation	E3		

Rev.	Date					
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL
		Purpose of Revision	Drawn	Check'd	Rev'd	App'd

Client: HORIZON NUCLEAR POWER

Project: WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title: A5025 OFF-LINE HIGHWAY IMPROVEMENTS
LANDSCAPE SCHEME
SECTION 1 VALLEY

Scale	1:1,250 @ A1	DO NOT SCALE
Jacobs No.	60PO8061	
Client No.		
Drawing No.	Jacobs Ref. 60PO8061_LVE_DMD_003	
	DCRM Ref. WN034-JAC-PAC-DRG-00011	

FIGURE 2

Access route for management of ecological mitigation areas

ERW GOCH COTTAGE

SEE FIGURE 3

A5025

Proposed attenuation pond and outfall

TYN FFYNNON

E1.2 EFA EFG

LE2.4 EFA EFB EFD

LE2.5 EFA EFB EFD EFE

LE4.2 EFB EFD

LE1.6 EFB EFC EFE

LE6.4 EFB EFD

LE2.6 EFA EFB EFD EFE

LE5.1 EFB EFD

E3.2 EFD

LE2.1 EFB EFD EFH

LE7.1 EFB

10m

20m

NOTES:
1. Planting and seeding mixes to be regional provenance.
2. For details of planting and seeding and LE7.1 proposed walls refer to the Design and Access Statement - Volume 3 - Associated Developments and Off-Site Power Station Facilities (Application Reference Number 8.2.3).

Function and element code legend

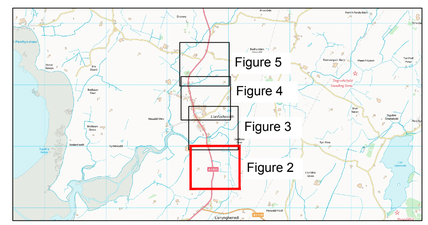
Landscape Elements		Environmental Functions	
Grassland	LE1	EFA	Visual screening
Native planting	LE2	EFB	Landscape integration
Hedgerows	LE4	EFC	Enhancing the built environment
Individual trees	LE5	EFD	Nature conservation and biodiversity
Wetland habitats	LE6	EFE	Visual amenity
Environmental Elements		EFG	Auditory amenity
Noise	E1	EFH	Water quality
Water	E2		
Nature conservation	E3		

0 50 100 150 m

SCALE 1 : 1250

Legend

- 10m contours
- Existing vegetation
- Existing vegetation to be retained
- Existing surface waters
- Existing wall
- Existing wall to be retained
- Area of Outstanding Natural Beauty (AONB)
- Public Right of Way (PRoW)
- PRoW to be stopped up
- PRoW diversion
- LE1.6 Open grassland
- LE2.4 Linear belt of native trees and shrubs
- LE2.5 Native shrubs with intermittent trees
- LE2.6 Native shrubs
- LE4.2 Native hedgerow
- LE5.1 Individual trees
- LE6.4 Marshy grassland
- LE7.1 Proposed wall
- E1.2 Noise barrier (2m high)
- Proposed fence
- Proposed ditch
- E3.2 Proposed ecology underpass



Rev.	Date	Purpose of Revision	Drawn	Check'd	Rev'd	App'd
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL

Client: HORIZON NUCLEAR POWER

Project: WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title: A5025 OFF-LINE HIGHWAY IMPROVEMENTS
LANDSCAPE SCHEME
SECTION 3 LLANFACHRAETH SHEET 1

Scale	1:1,250 @ A1	DO NOT SCALE
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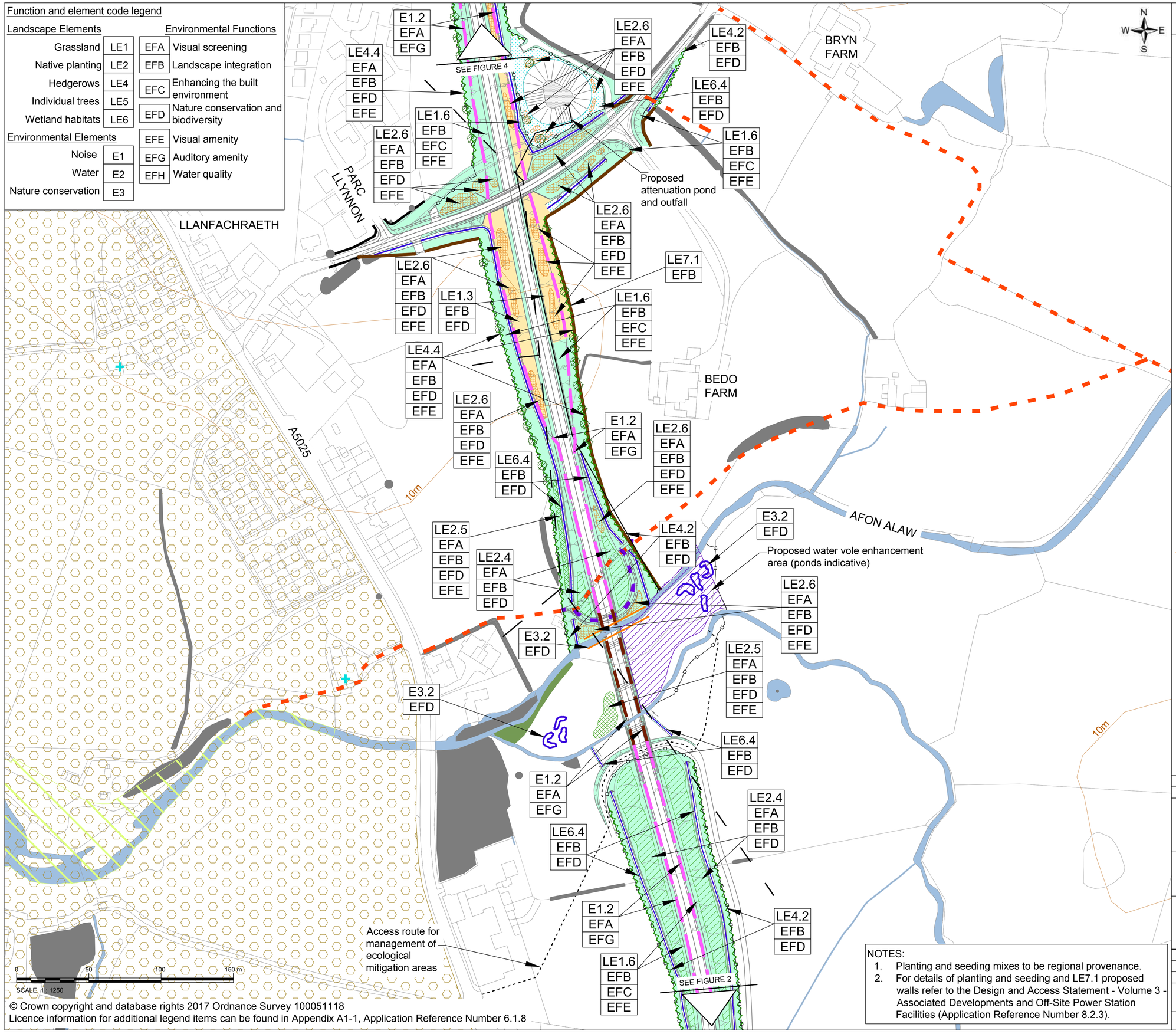
Client No.		
Drawing No.	Jacobs Ref. 60PO8061_LVE_DMD_004	
	DCRM Ref. WN034-JAC-PAC-DRG-00012	

FIGURE 3

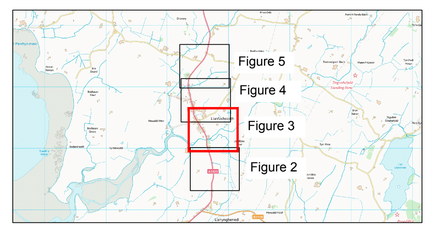
Function and element code legend

Landscape Elements		Environmental Functions	
Grassland	LE1	EFA	Visual screening
Native planting	LE2	EFB	Landscape integration
Hedgerows	LE4	EFC	Enhancing the built environment
Individual trees	LE5	EFD	Nature conservation and biodiversity
Wetland habitats	LE6	EFE	Visual amenity
Environmental Elements		EFG	Auditory amenity
Noise	E1	EFH	Water quality
Water	E2		
Nature conservation	E3		



Legend

- 10m contours
- Existing vegetation
- Existing vegetation to be retained
- Existing surface waters
- Existing wall
- Existing overhead line
- Area of Outstanding Natural Beauty (AONB)
- Listed Building
- Site of Special Scientific Interest
- Public Right of Way (PRoW)
- PRoW to be stopped up
- PRoW diversion
- LE1.3 Species-rich grassland
- LE1.6 Open grassland
- LE2.4 Linear belt of native trees and shrubs
- LE2.5 Native shrubs with intermittent trees
- LE2.6 Native shrubs
- LE4.2 Native hedgerow
- LE5.1 Individual trees
- LE7.1 Proposed wall
- E1.2 Noise barrier (2m high)
- E3.2 Proposed ecology underpass
- LE4.4 Native hedgerow with trees
- LE6.4 Marshy grassland
- Proposed fence
- Proposed ditch
- E1.2 Noise barrier (1m high)
- E3.2 Proposed water vole pond
- Flooding mitigation works area (proposals to be agreed with Natural Resources Wales)



NOTES:
1. Planting and seeding mixes to be regional provenance.
2. For details of planting and seeding and LE7.1 proposed walls refer to the Design and Access Statement - Volume 3 - Associated Developments and Off-Site Power Station Facilities (Application Reference Number 8.2.3).

Rev.	Date	Purpose of Revision	Drawn	Check'd	Rev'd	App'd
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL

Client: HORIZON NUCLEAR POWER

Project: WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title: A5025 OFF-LINE HIGHWAY IMPROVEMENTS
LANDSCAPE SCHEME
SECTION 3 LLANFACHRAETH SHEET 2

Scale	1:1,250 @ A1	DO NOT SCALE
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Client No.		
Drawing No.	Jacobs Ref. 60PO8061_LVE_DMD_005	
	DCRM Ref. WN034-JAC-PAC-DRG-00013	

FIGURE 4

Function and element code legend

Landscape Elements		Environmental Functions	
Grassland	LE1	EFA	Visual screening
Native planting	LE2	EFB	Landscape integration
Hedgerows	LE4	EFC	Enhancing the built environment
Individual trees	LE5	EFD	Nature conservation and biodiversity
Wetland habitats	LE6	EFE	Visual amenity
Environmental Elements		EFG	Auditory amenity
Noise	E1	EFH	Water quality
Water	E2		
Nature conservation	E3		

Access route for management of ecological mitigation areas

Proposed attenuation pond and outfall

SEE FIGURE 5

SEE FIGURE 3

Great crested newt mitigation area (pond indicative)

Proposed attenuation pond and outfall

LLANFACHRAETH

PARC LLYNNON

BRYN FARM

A5025

10m

20m

LE1.6 EFB EFC EFE

LE1.3 EFB EFD

LE2.6 EFA EFB EFD EFE

LE4.4 EFA EFB EFD EFE

LE6.4 EFB EFD

LE4.2 EFB EFD

E3.2 EFD

E1.2 EFA EFG

LE5.1 EFB EFD

E2.1 EFH

LE7.1 EFB

NOTES:
1. Planting and seeding mixes to be regional provenance.
2. For details of planting and seeding and LE7.1 proposed walls refer to the Design and Access Statement - Volume 3 - Associated Developments and Off-Site Power Station Facilities (Application Reference Number 8.2.3).

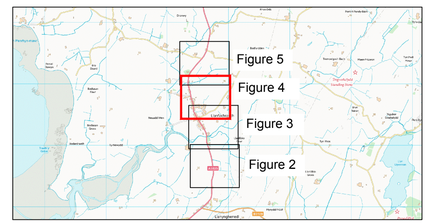
0 50 100 150 m

SCALE 1 : 1250

N W E S

Legend

- 10m contours
- Existing vegetation
- Existing vegetation to be retained
- Existing surface waters
- Existing wall
- Existing overhead line
- Area of Outstanding Natural Beauty (AONB)
- Listed Building
- Public Right of Way (PRoW)
- PRoW to be stopped up
- PRoW diversion
- LE1.3 Species-rich grassland
- LE1.6 Open grassland
- LE2.5 Native shrubs with intermittent trees
- LE2.6 Native shrubs
- LE4.4 Native hedgerow with trees
- LE7.1 Proposed wall
- E1.2 Potential noise barrier (2m high)
- Proposed fence
- E3.2 Proposed ecology underpass
- LE4.2 Native hedgerow
- LE6.4 Marshy grassland
- Proposed fence
- E3.2 Proposed log pile
- Proposed ditch
- E3.2 Proposed great crested newt pond



Rev.	Date	Purpose of Revision	Drawn	Check'd	Rev'd	App'd
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL

Client: HORIZON NUCLEAR POWER

Project: WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title: A5025 OFF-LINE HIGHWAY IMPROVEMENTS
LANDSCAPE SCHEME
SECTION 3 LLANFACHRAETH SHEET 3

Scale	1:1,250 @ A1	DO NOT SCALE
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Client No.		
Drawing No.	Jacobs Ref. 60PO8061_LVE_DMD_006	
	DCRM Ref. WN034-JAC-PAC-DRG-00014	

NOTES:
1. Planting and seeding mixes to be regional provenance.
2. For details of planting and seeding and LE7.1 proposed walls refer to the Design and Access Statement - Volume 3 - Associated Developments and Off-Site Power Station Facilities (Application Reference Number 8.2.3).

Function and element code legend

Landscape Elements		Environmental Functions	
Grassland	LE1	EFA	Visual screening
Native planting	LE2	EFB	Landscape integration
Hedgerows	LE4	EFC	Enhancing the built environment
Individual trees	LE5	EFD	Nature conservation and biodiversity
Wetland habitats	LE6	EFE	Visual amenity
Environmental Elements		EFG	Auditory amenity
Noise	E1	EFH	Water quality
Water	E2		
Nature conservation	E3		

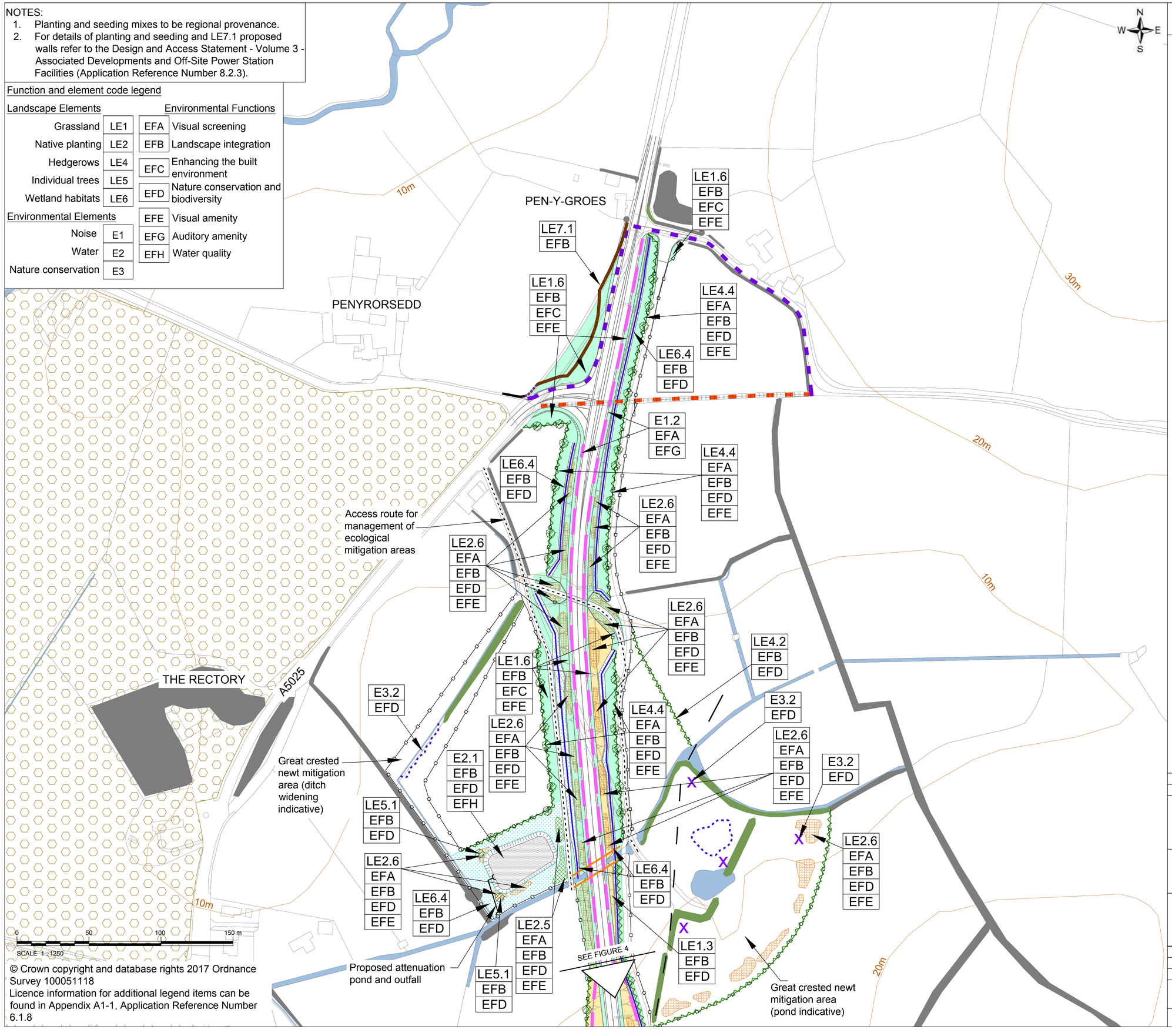
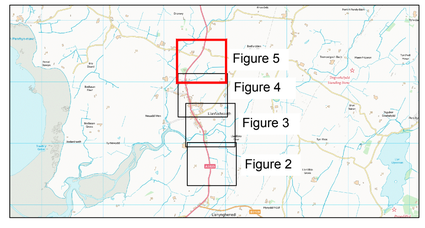


FIGURE 5

Legend

- 10m contours
- Existing vegetation
- Existing vegetation to be retained
- Existing surface waters
- Existing wall
- Existing wall to be retained
- Existing overhead line
- Area of Outstanding Natural Beauty (AONB)
- Public Right of Way (PRoW)
- PRoW to be stopped up
- PRoW diversion
- LE1.3 Species-rich grassland
- LE1.6 Open grassland
- LE2.5 Native shrubs with intermittent trees
- LE2.6 Native shrubs
- LE4.2 Native hedgerow
- LE4.4 Native hedgerow with trees
- LE5.1 Individual trees
- LE6.4 Marshy grassland
- LE7.1 Proposed wall
- Proposed ditch
- E3.2 Proposed great crested newt pond
- E1.2 Potential noise barrier (2m high)
- Proposed fence
- E3.2 Proposed log pile
- E3.2 Proposed ecology underpass



Rev.	Date	Purpose of Revision	Drawn	Check'd	Rev'd	App'd
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL

Client: HORIZON NUCLEAR POWER

Project: WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title: A5025 OFF-LINE HIGHWAY IMPROVEMENTS
LANDSCAPE SCHEME
SECTION 3 LLANFACHRAETH SHEET 4

Scale	1:1,250 @ A1	DO NOT SCALE
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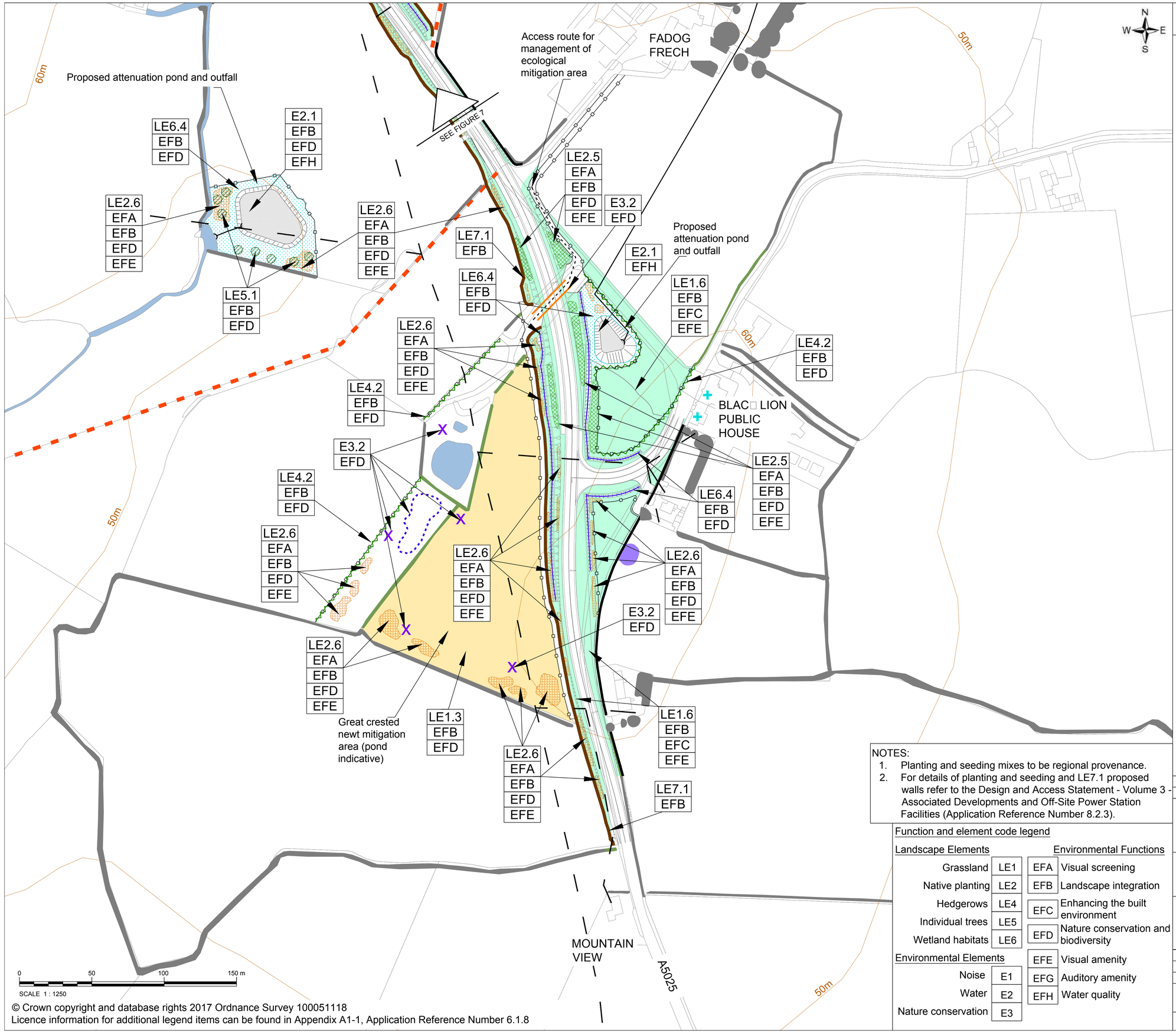
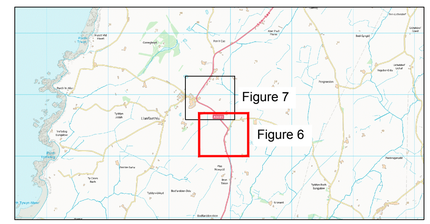
Client No.		
Drawing No.	Jacobs Ref. 60PO8061_LVE_DMD_007	
	DCRM Ref. WN034-JAC-PAC-DRG-00015	

FIGURE 6



Legend

- 10m contours
- Existing vegetation
- Existing vegetation to be retained
- Existing surface waters
- Existing wall
- Existing overhead line
- Listed Building
- Scheduled Monument
- Public Right of Way
- LE1.3 Species-rich grassland
- LE1.6 Open grassland
- LE2.5 Native shrubs with intermittent trees
- LE2.6 Native shrubs
- LE4.2 Native hedgerow
- LE5.1 Individual trees
- LE6.4 Marshy grassland
- LE7.1 Proposed wall
- Proposed fence
- Proposed ditch
- E3.2 Proposed great crested newt pond
- E3.2 Proposed log pile
- E3.2 Proposed ecology underpass



NOTES:
1. Planting and seeding mixes to be regional provenance.
2. For details of planting and seeding and LE7.1 proposed walls refer to the Design and Access Statement - Volume 3 - Associated Developments and Off-Site Power Station Facilities (Application Reference Number 8.2.3).

Function and element code legend

Landscape Elements		Environmental Functions	
Grassland	LE1	EFA	Visual screening
Native planting	LE2	EFB	Landscape integration
Hedgerows	LE4	EFC	Enhancing the built environment
Individual trees	LE5	EFD	Nature conservation and biodiversity
Wetland habitats	LE6	EFE	Visual amenity
Environmental Elements		EFG	Auditory amenity
Noise	E1	EFH	Water quality
Water	E2		
Nature conservation	E3		

Rev.	Date	Purpose of Revision	Drawn	Check'd	Rev'd	App'd
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL

Client: HORIZON NUCLEAR POWER

Project: WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title: A5025 OFF-LINE HIGHWAY IMPROVEMENTS
LANDSCAPE SCHEME
SECTION 5 LLANFAETHLU SHEET 1

Scale	1:1,250 @ A1	DO NOT SCALE
Jacobs No.	60PO8061	
Client No.		
Drawing No.	Jacobs Ref. 60PO8061_LVE_DMD_008	
	DCRM Ref. WN034-JAC-PAC-DRG-00016	

NOTES:
1. Planting and seeding mixes to be regional provenance.
2. For details of planting and seeding and LE7.1 proposed walls refer to the Design and Access Statement - Volume 3 - Associated Developments and Off-Site Power Station Facilities (Application Reference Number 8.2.3).

PROPOSED MEEG/AECC/ESL SITE

Proposed attenuation pond and outfall

LE1.6 EFB EFC EFE

LE6.4 EFB EFD

E2.1 EFH

LE5.1 EFB EFD

LE2.6 EFA EFB EFD EFE

LE7.1 EFB

LE1.3 EFB EFD

RHOS-TY-MAWR

LLANFAETHLU

A5025

60m

50m

80m

70m

SEE FIGURE 6

Function and element code legend

Landscape Elements		Environmental Functions	
Grassland	LE1	EFA	Visual screening
Native planting	LE2	EFB	Landscape integration
Hedgerows	LE4	EFC	Enhancing the built environment
Individual trees	LE5	EFD	Nature conservation and biodiversity
Wetland habitats	LE6	EFE	Visual amenity
Environmental Elements		EFG	Auditory amenity
Noise	E1	EFH	Water quality
Water	E2		
Nature conservation	E3		

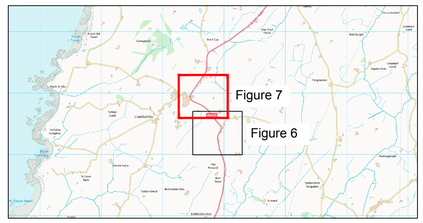
0 50 100 150 m

SCALE 1 : 1250

FIGURE 7

Legend

- 10m contours
- Existing vegetation
- Existing vegetation to be retained
- Existing surface waters
- Existing wall
- Existing wall to be retained
- Existing overhead line
- Area of Outstanding Natural Beauty (AONB)
- Registered Park and Garden Essential Setting
- Listed Building
- Bat roost
- Public Right of Way
- Proposed MEEG/AECC/ESL site
- LE1.3 Species-rich grassland
- LE1.6 Open grassland
- LE2.5 Native shrubs with intermittent trees
- LE2.6 Native shrubs
- LE5.1 Individual trees
- LE6.4 Marshy grassland
- LE7.1 Proposed wall
- Proposed fence
- Proposed ditch



Rev.	Date	Purpose of Revision	Drawn	Check'd	Rev'd	App'd
2.0	DEC 18	Boundary of Isle of Anglesey AONB amended	HNPWL	HNPWL	HNPWL	HNPWL
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL

Client: HORIZON NUCLEAR POWER

Project: WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title: A5025 OFF-LINE HIGHWAY IMPROVEMENTS
LANDSCAPE SCHEME
SECTION 5 LLANFAETHLU SHEET 2

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Jacobs No.	60PO8061	
Client No.		
Drawing No.	Jacobs Ref. 60PO8061_LVE_DMD_009	
	DCRM Ref. WN034-JAC-PAC-DRG-00017	

FIGURE 8

TY CAPEL

PEN Y GROES

AFON CAFNAN

TYN FELIN

A5025

40m

50m

60m

70m

Proposed attenuation pond and outfall

SEE FIGURE 9

LE1.6 EFB EFC EFE

LE6.4 EFB EFD

LE2.4 EFA EFB EFD

LE7.1 EFB

LE2.5 EFA EFB EFD EFE

LE1.3 EFB EFD

LE4.2 EFB EFD

LE5.1 EFB EFD

LE2.6 EFA EFB EFD EFE

E2.1 EFB EFD EFH

E3.2 EFD

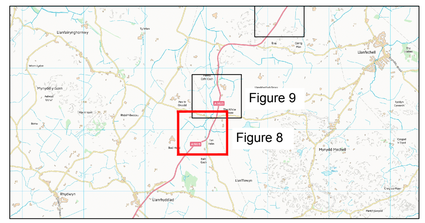
LE4.4 EFA EFB EFD EFE

0 50 100 150 m

SCALE 1 : 1250

Legend

- 10m contours
- Existing vegetation
- Existing vegetation to be retained
- Existing surface waters
- Existing wall
- Existing wall to be retained
- Existing overhead line
- Site of Special Scientific Interest
- Public Right of Way (PRoW)
- PRoW to be stopped up
- PRoW diversion
- LE1.3 Species-rich grassland
- LE1.6 Open grassland
- LE2.4 Linear belt of native trees and shrubs
- LE2.5 Native shrubs with intermittent trees
- LE2.6 Native shrubs
- LE4.2 Native hedgerow
- LE4.4 Native hedgerow with trees
- LE5.1 Individual trees
- LE6.4 Marshy grassland
- LE7.1 Proposed wall
- Proposed fence
- Proposed ditch
- E3.2 Proposed ecology underpass



NOTES:
1. Planting and seeding mixes to be regional provenance.
2. For details of planting and seeding and LE7.1 proposed walls refer to the Design and Access Statement - Volume 3 - Associated Developments and Off-Site Power Station Facilities (Application Reference Number 8.2.3).

Function and element code legend

Landscape Elements		Environmental Functions	
Grassland	LE1	EFA	Visual screening
Native planting	LE2	EFB	Landscape integration
Hedgerows	LE4	EFC	Enhancing the built environment
Individual trees	LE5	EFD	Nature conservation and biodiversity
Wetland habitats	LE6	EFE	Visual amenity
Environmental Elements		EFG	Auditory amenity
Noise	E1	EFH	Water quality
Water	E2		
Nature conservation	E3		

Rev.	Date	Purpose of Revision	Drawn	Check'd	Rev'd	App'd
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL

Client: HORIZON NUCLEAR POWER

Project: WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title: A5025 OFF-LINE HIGHWAY IMPROVEMENTS
LANDSCAPE SCHEME
SECTION 7 CEFN COCH SHEET 1

Scale	1:1,250 @ A1	DO NOT SCALE
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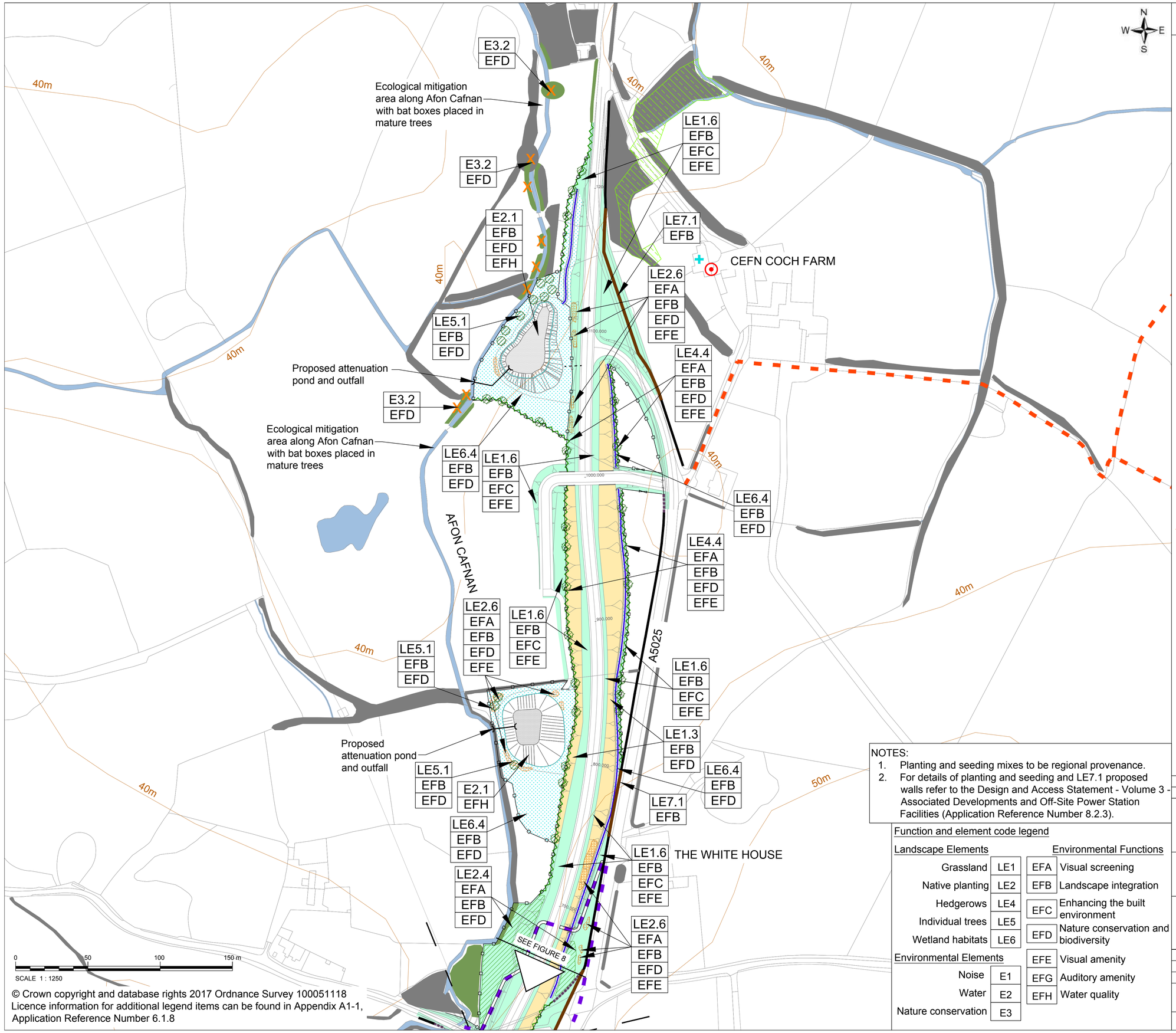
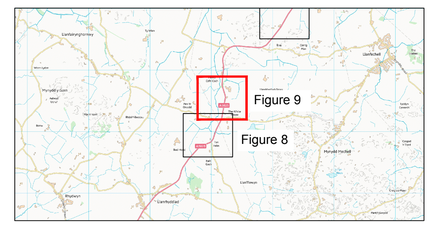
Client No.		
Drawing No.	Jacobs Ref. 60PO8061_LVE_DMD_010	
	DCRM Ref. WN034-JAC-PAC-DRG-00018	

FIGURE 9



Legend

- 10m contours
- Existing vegetation
- Existing vegetation to be retained
- Existing surface waters
- Existing wall
- Existing wall to be retained
- Existing overhead line
- Listed Building
- Ancient Woodland
- Bat roost
- Public Right of Way (PRoW)
- PRoW diversion
- LE1.3 Species-rich grassland
- LE1.6 Open grassland
- LE2.4 Linear belt of native trees and shrubs
- LE2.6 Native shrubs
- LE4.2 Native hedgerow
- LE4.4 Native hedgerow with trees
- LE5.1 Individual trees
- LE6.4 Marshy grassland
- LE7.1 Proposed wall
- Proposed fence
- Proposed ditch
- E3.2 Proposed bat boxes (24 in total, symbols indicative)
- E3.2 Proposed ecology underpass



NOTES:
1. Planting and seeding mixes to be regional provenance.
2. For details of planting and seeding and LE7.1 proposed walls refer to the Design and Access Statement - Volume 3 - Associated Developments and Off-Site Power Station Facilities (Application Reference Number 8.2.3).

Function and element code legend

Landscape Elements		Environmental Functions	
Grassland	LE1	EFA	Visual screening
Native planting	LE2	EFB	Landscape integration
Hedgerows	LE4	EFC	Enhancing the built environment
Individual trees	LE5	EFD	Nature conservation and biodiversity
Wetland habitats	LE6	EFE	Visual amenity
Environmental Elements		EFG	Auditory amenity
Noise	E1	EFH	Water quality
Water	E2		
Nature conservation	E3		

Rev.	Date	Purpose of Revision	Drawn	Check'd	Rev'd	App'd
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL

Client: HORIZON NUCLEAR POWER

Project: WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title: A5025 OFF-LINE HIGHWAY IMPROVEMENTS
LANDSCAPE SCHEME
SECTION 7 CEFN COCH SHEET 2

Scale	1:1,250 @ A1	DO NOT SCALE
Jacobs No.	60PO8061	
Client No.		
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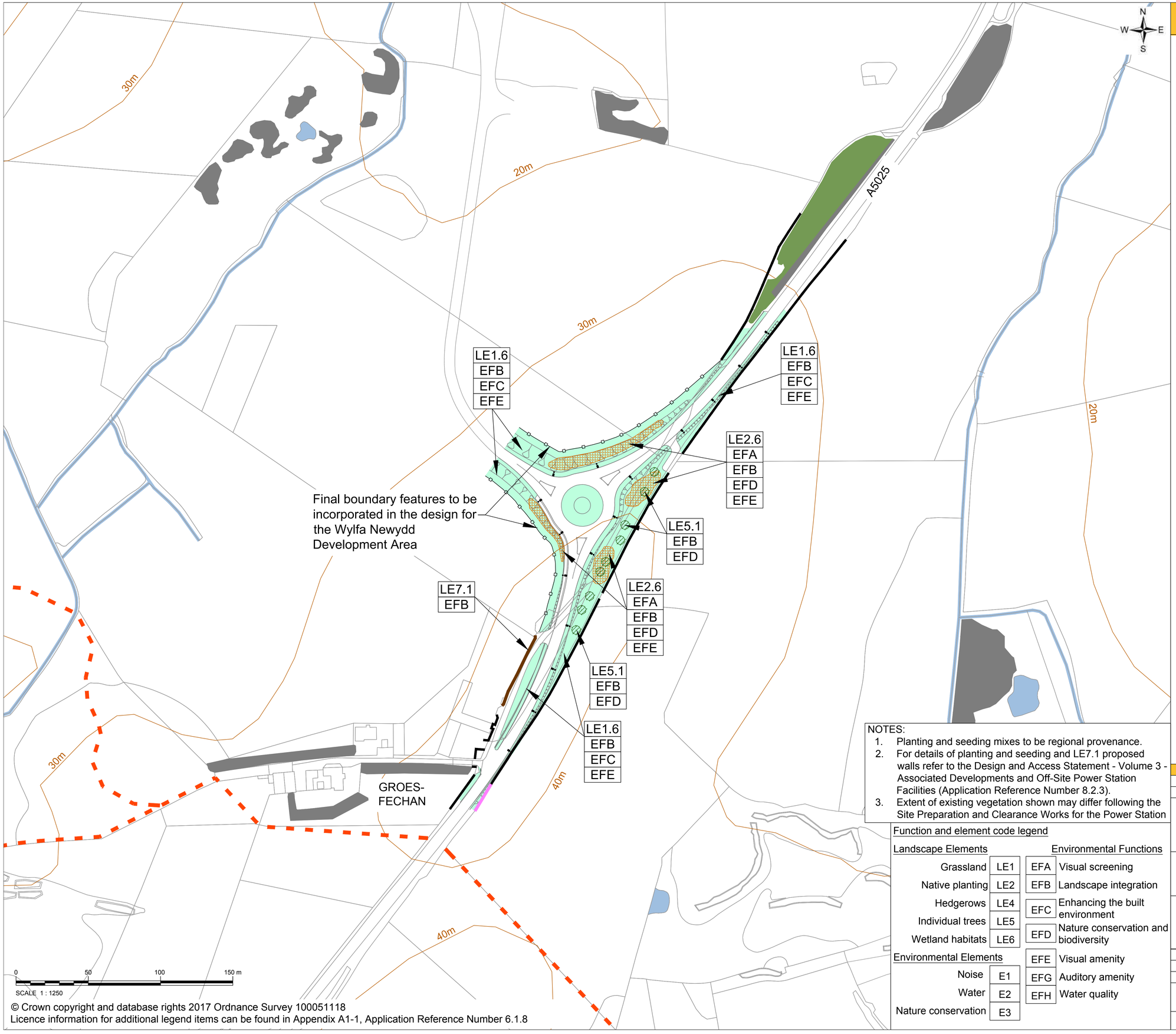
	DCRM Ref. WN034-JAC-PAC-DRG-00019	

FIGURE 10



Legend

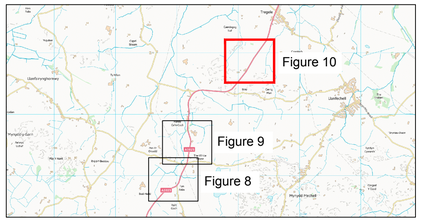
- 10m contours
- Existing vegetation
- Existing vegetation to be retained
- Existing surface waters
- Existing wall
- Existing clawdd
- Public Right of Way
- LE1.6 Open grassland
- LE2.6 Native shrubs
- LE5.1 Individual trees
- LE7.1 Proposed wall
- Proposed fence
- Proposed 10m high lighting column

NOTES:

1. Planting and seeding mixes to be regional provenance.
2. For details of planting and seeding and LE7.1 proposed walls refer to the Design and Access Statement - Volume 3 - Associated Developments and Off-Site Power Station Facilities (Application Reference Number 8.2.3).
3. Extent of existing vegetation shown may differ following the Site Preparation and Clearance Works for the Power Station

Function and element code legend

Landscape Elements		Environmental Functions	
Grassland	LE1	EFA	Visual screening
Native planting	LE2	EFB	Landscape integration
Hedgerows	LE4	EFC	Enhancing the built environment
Individual trees	LE5	EFD	Nature conservation and biodiversity
Wetland habitats	LE6	EFE	Visual amenity
Environmental Elements		EFG	Auditory amenity
Noise	E1	EFH	Water quality
Water	E2		
Nature conservation	E3		



Rev.	Date	Purpose of Revision	Drawn	Check'd	Rev'd	App'd
2.0	JAN 19	Lighting columns added & tree mitigation updated	HNPWL	HNPWL	HNPWL	HNPWL
1.0	MAR 18	DCO submission	HNPWL	HNPWL	HNPWL	HNPWL

Client

HORIZON NUCLEAR POWER

Project

WYLFA NEWYDD PROJECT
ENVIRONMENTAL STATEMENT

Drawing Title

A5025 OFF-LINE HIGHWAY IMPROVEMENTS
LANDSCAPE SCHEME
POWER STATION ACCESS ROAD JUNCTION

Scale	1:1,250 @ A1	DO NOT SCALE
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Client No.		
Drawing No. Jacobs Ref.	60PO8077_LVE_DMD_001	
Drawing No. DCRM Ref.	WN0902-JAC-OS-DRG-00001	

B APPENDIX B

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HORIZON
NUCLEAR POWER

CONTACT US:
If you have any questions or feedback regarding the Wylfa Newydd Project you can contact us on our dedicated Wylfa Newydd freephone hotline and email address, by calling on **0800 954 9516** or emailing **wylfaenquiries@horizonnuclearpower.com**

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HORIZON NUCLEAR POWER

WYLFA NEWYDD

ENERGY WORKING FOR BRITAIN

Design and Access Statement Volume 3

Appendix 1-6 Environmental Sustainability Policies

Contents

1. ENVIRONMENTAL SUSTAINABILITY POLICIES 4

2. REFERENCE DOCUMENTS 7

1 ENVIRONMENTAL SUSTAINABILITY POLICIES

Environmental sustainability policies

1.1.1 Volume 1 of the Design and Access Statement (Application Reference Number: 8.2.1) provides an overarching summary of relevant planning policy and legislation in relation to the Wylfa Newydd DCO Project, with further detail on specific relevant policies set out in the Planning Statement (Application Reference Number: 8.1). This appendix provides a summary of sustainability guidance from national and local planning guidance that is relevant, from a design perspective, to the Associated Development and Off-Site Power Station Facilities proposals.

SUSTAINABILITY THEME	NATIONAL PLANNING GUIDANCE	LOCAL PLANNING GUIDANCE	HORIZON POLICY OBJECTIVE
Site analysis	***Practice Guidance – Planning for Sustainable Buildings (Welsh Government, 2014)*** Site analysis and layout including consideration of: Topography and landscape Biodiversity Micro-climate (sun/wind) Access, routes and transport Existing buildings/structures Facilities/amenities and access to them Contamination Flood risk Noise	***Design Guide for the Urban and Rural Environment (Guidance Note 5: Sustainable Construction, Guidance Note 6: Site and Setting, Guidance Note 7: Form, Proportion and Scale) (Isle of Anglesey County Council (IACC), 2008)*** Designs should maximise the solar gain potential of the location. Aspect and orientation: Buildings should be protected from climatic exposure whilst maximising the opportunities for environmentally responsive 'green' measures which promote sustainability. Solar gain: This can be maximised by positioning the most-used rooms of a building in a south-facing direction. This method should help reduce energy consumption in buildings. Sustainable form of the building to maximise energy efficiency, e.g. compact in form. Natural ventilation and light. Encourage sustainable locations i.e. sites located near to local services and shops to reduce the need to travel by car.	2.1 Build for sustainability; integrate sustainability into all physical and process designs, demonstrably and measurably where possible. 4.3 Conserve and enhance the local natural environment, beginning with a rigorous investigation and recording of the baseline on Anglesey.
Site layout	***Technical Advice Note 12: Design (Welsh Government, 2016)*** Environmental sustainability Biodiversity and local environment Landscape/townscape issues ***Practice Guidance – Planning for Sustainable Buildings (Welsh Government, 2014)*** Network and hierarchy of routes Green infrastructure Enhancing biodiversity Site-wide water management and drainage Connections to district heating networks Orientation and solar access Parking and transport Density Constraints and opportunities	***Design Guide for the Urban & Rural Environment (Guidance Note 2: Sustainable Design and Guidance Note 28: Industrial and Large Development) (IACC, 2008)*** All development should enhance the quality of landscape, ecology, biodiversity and culture. Appropriate landscaping and screening should be incorporated into the design. Care should be given in ensuring the development of unified boundary treatments. Plant species and planting patterns should reflect local character. Over-use of conifer plants should be avoided. The development of a structural landscape framework offers the potential to integrate and mitigate the visual impacts of industrial buildings and sites. The provision of underground services, overhead cabling, lighting, etc., and their method of connection at each plot should be fully integrated in its approach across the site. ***New Nuclear Build at Wylfa Supplementary Planning Guidance (SPG) (IACC, 2014)*** Conserving and enhancing the natural environment - minimising disturbance during construction and operation, minimising land used to facilitate construction, maximising previously developed land, landscaping and provision of green space. Any potential adverse effects on the landscape and townscape Character of the surrounding area should be mitigated and/or compensated.	4.3 Conserve and enhance the local natural environment, beginning with a rigorous investigation and recording of the baseline on Anglesey.

SUSTAINABILITY THEME	NATIONAL PLANNING GUIDANCE	LOCAL PLANNING GUIDANCE	HORIZON POLICY OBJECTIVE
Energy and carbon	***Technical Advice Note 12: Design (Welsh Government, 2016)*** Environmental Sustainability - Energy Efficiency and Carbon Reduction. ***Practice Guidance – Planning for Sustainable Buildings (Welsh Government, 2014)*** Recommends considering the wider site and context before attention is given to building form and fabric, and then to technologies. Building form and layout including consideration of fenestration, daylight and solar control. Provides guidance on considering building physics, space planning, form factor ratios, fenestration, daylight, solar control and off-site construction. Building fabric efficiency considerations including U-values, insulation, air tightness, thermal bridging and thermal mass. Building services considering: efficient heating; cooling and ventilation; hot water; electric power and appliances; and lighting.	***Design Guide for the Urban and Rural Environment (Guidance Note 2: Sustainable Design and Guidance Note 5: Sustainable Construction) (IACC, 2008)*** Renewable energy sources should be used where possible Design and layout considerations: • Access to natural light will reduce the energy required for lighting during the day. • Buildings need to have the capability to minimise the energy they use to provide heat, light and ventilation. Good siting will enable buildings to maximise the amount of natural heat and light provided to rooms i.e. rooms that are inhabited the most should be facing south for solar gain. Good ventilation can be achieved by draught-proofing the building. Hot water storage tanks and pipes should be well insulated to prevent heat loss. ***New Nuclear Build at Wylfa SPG (IACC, 2014)*** Promotion of opportunities in renewable (including carbon) energy generation. Ensuring that employment, supply chain and procurement opportunities are advertised and accessible locally. Mitigating climate change including use of materials with low embedded carbon, energy efficiency measures in layout and design of new buildings. Proposals should incorporate on-site renewable energy provision where viable. Development of Carbon Management Plan. ***The Anglesey Energy Island™ Programme (IACC initiative, 2010), as a "centre of excellence for Research & Development, Production and Servicing of Low Carbon Energy".*** Inclusion of low carbon technologies to support the Energy Island™ plan.	2.1 Build for sustainability; integrate sustainability into all physical and process designs, demonstrably and measurably where possible. 2.2 Instil knowledge of low carbon technologies in the community, through our own operations, actively working with others, and our education programme.
Water	***Technical Advice Note 12: Design (Welsh Government, 2016)*** Environmental Sustainability – Water ***Practice Guidance – Planning for Sustainable Buildings (Welsh Government, 2014)*** Water management includes: Water-efficient fittings Optimise hot water system layout and design	***Design Guide for the Urban and Rural Environment SPG (Guidance Note 5: Sustainable Construction) (IACC, 2008)*** Drought-resistant plants should be used in landscaping schemes. Low/dual flush toilets can help reduce water consumption. Water-saving features such as aerated heads can be used on showers and taps. ***New Nuclear Build at Wylfa SPG (IACC, 2014)*** Includes the use of water-efficient products and design. Considers conserving the water environment includes implementing water efficiency measures	2.1 Build for sustainability; integrate sustainability into all physical and process designs, demonstrably and measurably where possible.

SUSTAINABILITY THEME	NATIONAL PLANNING GUIDANCE	LOCAL PLANNING GUIDANCE	HORIZON POLICY OBJECTIVE
Waste	**Technical Advice Note 12: Design (Welsh Government, 2016)** Environmental Sustainability – waste management. **Technical Advice Note 21: Waste (Welsh Government, 2014)** ***Practice Guidance – Planning for Sustainable Buildings (Welsh Government, 2014)*** Waste management: Construction waste Recycling facilities and space for waste storage	***Design Guide for the Urban & Rural Environment – Guidance Note 12: Large and Industrial Buildings (IACC, Mar 2008)*** Refuse storage and collection facilities should be designed to fit into the surrounding environment and be as unobtrusive as possible. Satisfactory access and servicing space for waste collection vehicles will be required. The location of storage facilities should ideally be located at the back of the building in order to minimise the visual impact of the bins. However, bins should be located in a position where they can be readily collected. Where it is not possible to locate the storage facility at the back of the building it is important to ensure that its visual impact is minimal. In such cases consider enclosing the bins from view. ***Design Guide for the Urban and Rural Environment – Guidance Note 31: Waste and Recycling Provision for New Development (IACC, 2008)*** Space/location in residential development, space for composting, use of durable materials for waste storage, capacity for future changes. ***New Nuclear Build at Wylfa SPG (IACC, 2014)*** Includes consideration of managing waste sustainably – encouraging provision of facilities that encourage re-use and recycling of waste.	2.1 Build for sustainability; integrate sustainability into all physical and process designs, demonstrably and measurably where possible.
Sustainable materials	***Technical Advice Note 12: Design (Welsh Government, 2016)*** Environmental Sustainability - sustainable Materials ***Practice Guidance – Planning for Sustainable Buildings (Welsh Government, 2014):*** Selection of materials should include consideration of the following: Embodied energy Local supply Durability Recycled and recyclable	***Design Guide for the Urban and Rural Environment (Guidance Note 2: Sustainable Design and Guidance Note 5: Sustainable Construction) (IACC, 2008)*** Buildings should be designed to withstand the climate of an area. Local materials should be used where possible from renewable sources. The materials used in a building will affect its energy efficiency and level of sustainability. Use local materials to support the local economy and reduce the amount of transport used to move the goods. Use timber that is sustainably harvested. ***New Nuclear Build at Wylfa SPG (IACC, 2014)*** Includes the use of sustainably sourced construction materials with low embedded carbon.	2.1 Build for sustainability; integrate sustainability into all physical and process designs, demonstrably and measurably where possible.
Safety and security	***Technical Advice Note 12: Design (Welsh Government, 2016)*** Community safety - crime prevention ***Practice Guidance – Planning for Sustainable Buildings (Welsh Government, 2014)*** Maintenance and security	***Design Guide for the Urban and Rural Environment (Guidance Note 6: Site and Setting and Guidance Note 9: Crime and Security) (IACC, 2008)*** Consultation should be undertaken with North Wales Police Architectural Liaison Officer before Planning submission. Measures which reduce crime through maximising natural surveillance and the creation of easily monitored defensible spaces are encouraged. Existing and proposed closed circuit television should be taken into account when developing a landscaping scheme. ***New Nuclear Build at Wylfa SPG (IACC, 2014)*** Incorporate high standards of design which reduce crime, anti-social behaviour and the fear of crime.	

SUSTAINABILITY THEME	NATIONAL PLANNING GUIDANCE	LOCAL PLANNING GUIDANCE	HORIZON POLICY OBJECTIVE
Flooding, surface water runoff and climate change adaptation	***Well-being of Future Generations (Wales) Act (Welsh Government, 2015)*** ***Technical Advice Note 12: Design (Welsh Government, 2016)*** Environmental Sustainability - climate resilience ***Technical Advice Note 15: Development and Flood Risk (Welsh Assembly Government, 2004)*** ***Practice Guidance – Planning for Sustainable Buildings (Welsh Government, 2014)*** Site analysis and layout including consideration of: Flood risk Site-wide water management and drainage	***Design Guide for the Urban and Rural Environment (Guidance Note 5: Sustainable Construction and Guidance Note 12: Large and Industrial Buildings) (IACC, 2008)*** Permeable surfaces that allow rainwater to drain freely into the ground should be used where possible. Rainwater harvesting systems should be considered. Rainwater runoff is important and should be considered in the design proposal. Use of sustainable drainage systems is encouraged. ***New Nuclear Build at Wylfa SPG (IACC, 2014)*** Locate development away from flood risk areas and seek to mitigate risks of climate change. Adapting to climate change includes requirements to avoid areas of flood risk. If unavoidable, developments should be designed to be operational when flooding occurs with compensatory storage. Developments should withstand the effects of climate change. Solutions should include Sustainable Urban Drainage Systems (SuDS).	
Pollution	***Technical Advice Note 11: Noise (Welsh Office, 1997)*** ***Practice Guidance – Planning for Sustainable Buildings (Welsh Government, 2014)*** Avoid watercourse pollution through SuDS techniques Reduce light pollution Reduce noise pollution	***Design Guide for the Urban and Rural Environment (Guidance Note 10: Reducing potential light pollution on Ynys Mon (Anglesey)) (IACC, 2008)*** ***New Nuclear Build at Wylfa SPG (IACC, 2014)*** Minimising sources of pollution to water, air and land through adoption of Environmental Management Plan.	
Health, well-being and social issues	***Practice Guidance – Planning for Sustainable Buildings (Welsh Government, 2014)***	***Design Guide for the Urban and Rural Environment (Guidance Note 5: Sustainable Construction, Guidance Note 6: Site and Setting and Guidance Note 7: Form, Proportion and Scale) (IACC, 2008)*** Encourages maximising natural ventilation and light. ***New Nuclear Build at Wylfa SPG (IACC, 2014)*** Supporting the visitor economy – including consideration of transport, amenity and visual impacts of the development on tourists. Protecting health – including consideration of construction-related impacts. Maintaining and strengthening Welsh language and culture.	**4.1 Be a good neighbour doing what we can to keep local disruption to a minimum throughout the project life-cycle.**

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