

Chapter 5: Alternatives and Design Evolution

5 Alternatives & Design Evolution

5.1 Introduction

The EIA Regulations 2017 (Part 5, Paragraph 3), state that an ES is required to provide:

"A description of the reasonable alternatives [for example in terms of development design, technology, location, size and scale] studied by the applicant or appellant, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the significant effects of the development on the environment".

This chapter of the ES details the main alternatives considered by the Applicant prior to the finalisation of the proposed scheme and shows the process of avoiding impacts through the iterative and collaborative design of the development ('mitigation by design').

In this chapter, potential alternatives have been broadly grouped into the following categories:

- Alternative sites;
- Alternative land uses;
- Alternative processes; and
- Alternative development layouts.

Alternative sites and land uses have not been considered by the Applicant, on the basis that the proposals specifically relate to the application site and the proposed land uses are supported by the emerging Wrexham Local Development Plan 2013-2028 (Policy SP11 to deliver employment land (allocation reference KSS3 'Land to the north of Bryn Lane, Wrexham Industrial Estate')). Alternative processes, which are typically more relevant to heavy industry, have also not been considered.

Given that alternative sites, land uses, and processes have not been considered, this chapter focuses primarily on the design evolution of the proposed development and the alternative development layouts considered during this process.

5.2 Design Principles

In line with the application site's proposed allocation, the main design principles for the proposed development are as follows:

- Create a first class, regionally significant employment hub and strengthen Wrexham Industrial Estate;
- Provide flexibility for the proposed development to accommodate a range of use classes and unit sizes to ensure the development appeals to the widest possible occupier market and responds to future demands;
- Contribute towards the local economy through the creation of a substantial number of new jobs within Wrexham and the wider area (refer to Chapter 7: Socio-economics for further information);
- Maintain and enhance aspects of the existing ecological value of the application site with a comprehensive landscape and biodiversity strategy, incorporating flood mitigation proposals, and connecting into wider green infrastructure corridor proposals;
- Provide appropriate spatial separation from nearby sensitive residential receptors, with the implementation of appropriate mitigation and screening where required;
- Create a high-quality scheme with a sympathetic layout to create a welcoming environment at human scale and also minimise wider landscape and visual impacts; and
- Deliver an access strategy that is sympathetic to the existing highway layout and reduces HGV movements on the local road network.

The scheme masterplan has formed the basis of the design evolution process. The sections below discuss how the masterplan has evolved to arrive at the final proposed development design and scheme parameters (as set out in Chapter 4: The Proposed Development), and the environmental considerations that have influenced this process.

5.3 Environmental Considerations

A number of environmental considerations have influenced the design evolution of the development proposals, notably in respect of landscape and visual impacts, noise, biodiversity, and transport and accessibility. Other influencing factors include the location of existing utilities and the need for adequate sustainable drainage solutions to be provided on site.

From the outset, given the proposed development would introduce new industrial/storage & distribution uses, a key objective has been to design a layout that minimises potential visual and disturbance impacts on the surrounding receptors, notably residential properties to the north-west of the application site. In this regard, the layout and massing proposals have evolved to align with the Wrexham Industrial Estate to the south of the application site. A key design concept has also been to locate the large industrial units in the east of the application site away from the residential receptors and, where possible, have all yard spaces and operational activities facing inwards such that the buildings would provide a degree of screening. The landscaping strategy has also focused on the provision of bunds around the perimeter of the application site, which would provide visual screening, as well as providing acoustic attenuation to the adjacent residential receptors and ecological mitigation.

The provision of ecological mitigation has been a fundamental consideration in the creation of the site-wide landscaping strategy. In line with the application site's allocation within the emerging Local Plan (draft allocation KSS3), the proposals include the provision of an ecological corridor through the centre of the application site, which would provide continued connectivity to the surrounding area, as well as form a key part of the on-site mitigation strategy for Great Crested Newts (GCNs). In this regard, the landscaping strategy has aimed at retaining existing ponds which form suitable GCN habitat, re-providing ponds where this is not possible, as well as creating new 'stepping stone' ponds. A tree retention strategy that retains important trees across the application site, including a central veteran tree, has also been fundamental to the landscaping designs.

As noted in Chapter 3: Application Site and Surrounding Area, the application site is located within the River Dee catchment, which is a designated special area of conservation (the River Dee and Bala Lake SAC). New developments must demonstrate that they would not contribute to increasing phosphate levels entering the catchment, which could adversely impact the SAC. Consultations with Natural Resource Wales (NRW), Wrexham CBC and Dwr Cymru Welsh Water (DCWW) are currently ongoing to determine if there is capacity within the existing sewerage network to accommodate wastewater from the proposed development, as well as to agree the preferred wastewater treatment strategy. Given that it remains uncertain at this stage as to whether or not there is sufficient capacity, the scheme has been designed such that it could accommodate on-site wastewater treatment, if required.

In respect of transport and accessibility, the application site is well connected to Wrexham, North Wales and the North West of England via the A534, which is connected to the application site via the Industrial Estate Road. However, given that the proposed development would introduce new vehicle trips associated with the proposed industrial-led development and would be accessed via the existing roundabout on entrance to the Wrexham Industrial Estate, the delivery of necessary infrastructure and the location of existing public transport provision has been a key consideration in the design process. In this regard, upgrades to the existing roundabout have been included as part of the proposed development, as discussed in Section 5.4 below. The provision of footways and on-road cycleways through the proposed development, together with associated cycle storage and changing/shower facilities, have been key in designing a scheme which promotes the use of sustainable transport.

Other environmental considerations that have influenced the design evolution of the proposed development include the ambition to create a wellness trail around the application site, which would create an attractive and healthy environment for users and visitors of the application site.

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5.4 Alternative Development Layouts

5.4.1 2022 Initial Masterplan Design

At the beginning of 2022, the project architects, St George & Partners, produced an initial scheme masterplan based on the project brief provided by the Applicant and the key design principles discussed in **Section 5.2**.

The initial masterplan is shown in **Figure 5.3.1** and comprises:

- Delivery of approximately 1,290,000 sqm GEA of floorspace, for industrial/storage & distribution uses (Use Class B1c (light industrial appropriate in a residential area), B2 (general industrial), and B8 (storage and distribution)), to be provided across five medium to large sized units and 11 smaller units (to be delivered across 5 buildings), with potential for up to 35,000 sqm GEA of additional ancillary retail floorspace (Use Class A1/A3);
- Provision of an internal access road, with the primary access from a junction in the south-west corner of the application site, adjoining the industrial road roundabout, and a secondary access from Bryn Lane in the south-eastern corner of the application site;
- Delivery of a substantial landscaping strategy, including an approximately 38 m wide ecological corridor through the centre of the application site;
- Creation of a wellness trail around the edge of application site to provide future occupiers with strong welfare and amenity areas; and
- Creation of a 50 m wide residential buffer zone in the north-western corner of the application site in which no development would take place to protect adjacent residential receptors, as depicted by the pink shaded area in **Figure 5.4.1**.

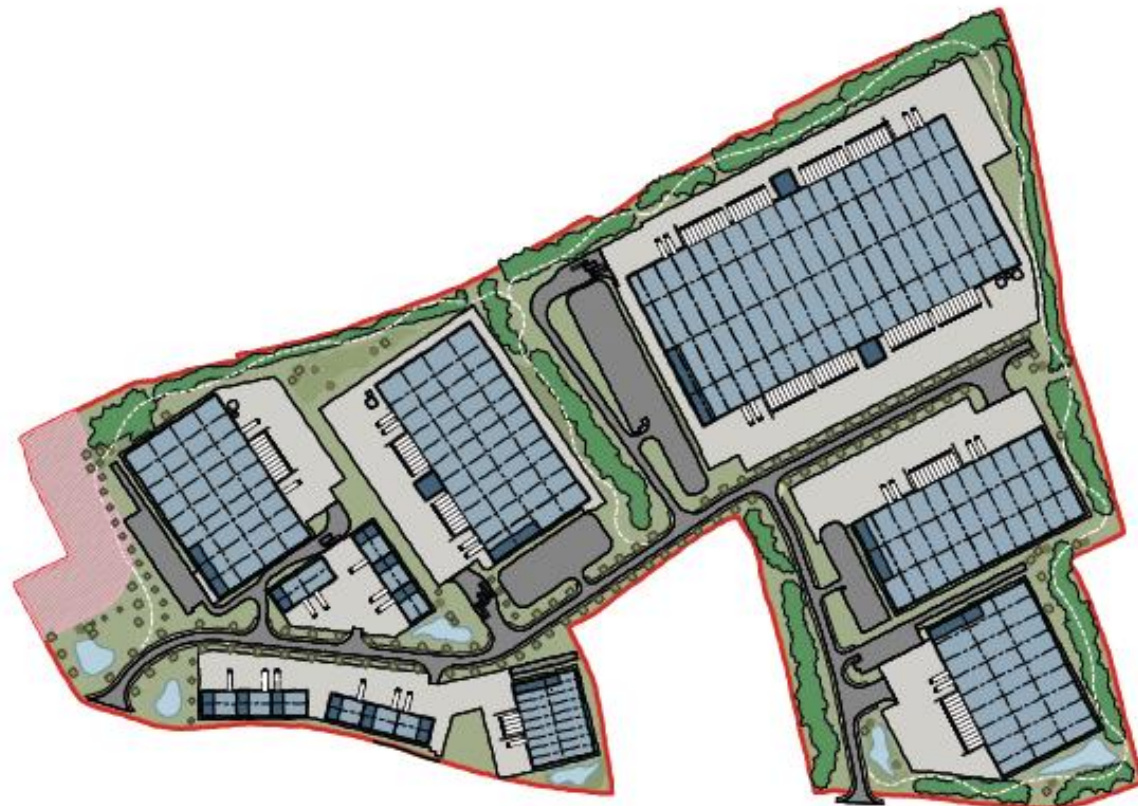


FIGURE 5.4.1
2022 Initial Proposed Masterplan Layout

5.4.2 August 2022

Following feedback received during pre-application consultation on the initial masterplan, as well as feedback from technical specialists, the following amendments were made:

- Changes to the number and scale of the industrial units, with the amended masterplan now including one large unit in the east of the application site and a number of smaller units closer to the primary entrance at the west of the application site;
- Introduction of more potential use classes at the western end of the application site (including ancillary retail/drive thru facilities, a hotel and petrol filling station (Use Classes A1, A3, C1 & sui generis), intended to provide the proposed development with more flexibility and thus serving a wider variety of potential occupiers;
- Given that these additional use classes would be delivered in smaller grain buildings, these were positioned at the western end of the application site, adjacent to the primary site entrance, to enable visitors to be greeted by buildings of a more human scale and minimise the visual impact to the adjacent residential receptors to the north-west of the application site;
- The landscaping strategy was enhanced to include soft landscaping within the residential buffer zone which would serve to provide improved visual amenity for residential receptors to the north-west of the application site; and
- The secondary site access point was relocated along Bryn lane to serve a smaller industrial unit.

The proposed masterplan layout in August 2022 is shown in **Figure 5.4.2**.



FIGURE 5.4.2
August 2022 Proposed Masterplan Layout

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5.4.3 September 2022

In September 2022, the scale of the industrial unit in the east of the application site was reconsidered as the single large unit previously proposed would provide reduced functionality due to the larger warehouse to service yard ratio. As such, the unit was split into two separate units either side of the main access route.

This change also resulted in improvements to the potential landscape and visual impacts of the scheme, as a result of the reduced built form and broken up massing, specifically in relation to views from areas to the east of the application site. Biodiversity was another environmental factor which benefited from this change, as the amended building footprint allowed for an enlargement of the landscaping buffer along the eastern boundary.

In respect of site access, the secondary access point was relocated back to its original position on Bryn Lane under this iteration of the masterplan.

The proposed masterplan layout in September 2022 is shown in **Figure 5.4.3**.

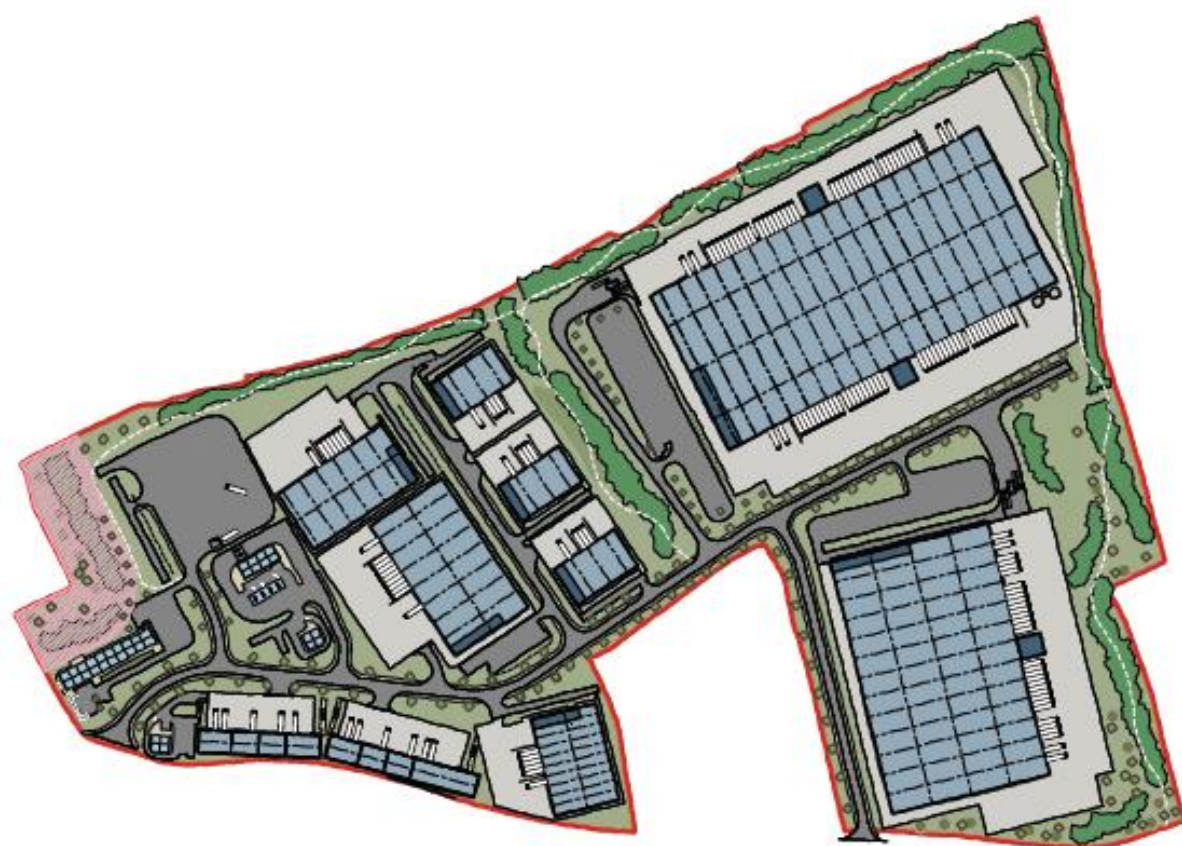


FIGURE 5.4.3
September 2022 Proposed Masterplan Layout

5.4.4 January 2023

The masterplan was further rationalised between September 2022 and January 2023, resulting in the following changes:

- Following input with the project arboricultural consultant, TEP, the footprint of Units 4 and 5 and the associated yard space along the ecological corridor was set back to enable the retention of the veteran tree (and its root protection zone) located along this corridor;
- The service yard arrangement for the unit in the south-eastern corner of the application site was relocated from the eastern side of the unit to the western and southern sides in order to move the operational activities to be more inwardly facing, in turn minimising landscape and visual impacts and impacts from light pollution etc on surrounding receptors; and
- Amendments were also made to the building layouts & distribution of land uses in the western component of the application site, such as reducing the quantum of the HGV parking in the north-western corner of the application site, intended to minimise noise impacts to the adjacent residential receptors.

The proposed masterplan layout in January 2023 is shown in **Figure 5.4.4**.

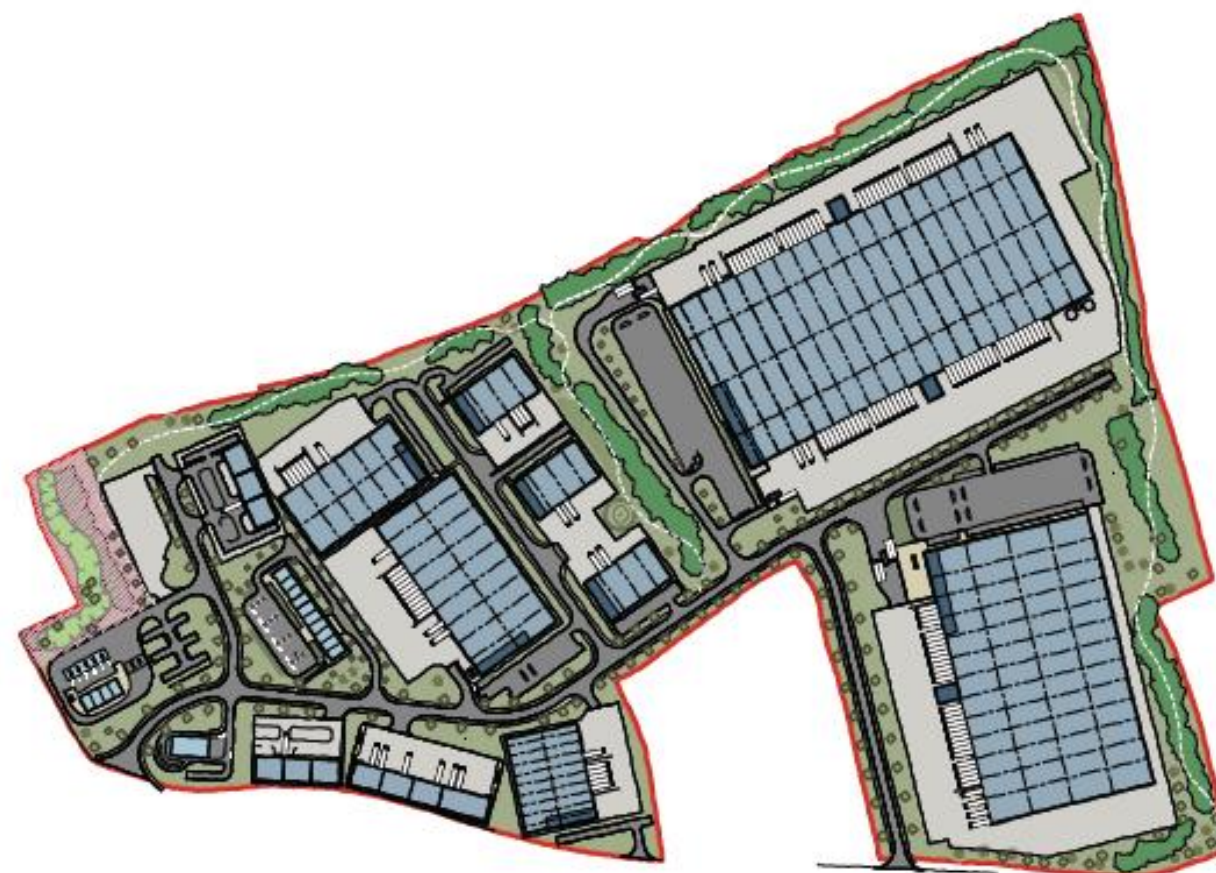


FIGURE 5.4.4
January 2023 Proposed Masterplan Layout

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5.5 Final Scheme

During the final stages of the design process in 2023, the main changes made to masterplan were driven by environmental factors, as set out below.

Following consultation with the Ecology Officer at Wrexham CBC, the landscaping strategy was further developed and refined to provide on-site mitigation for Great Crested Newts (GCNs). In this regard, the proposals were amended to retain 2 existing ponds and introduce 16 new ponds within the ecological corridor to provide connected suitable habitat for the GCNs along this key route. The landscaping strategy was also amended to relocate existing ponds which would be lost as a result of the proposed development.

In respect of flood risk and drainage, the landscaping strategy was developed to include sustainable drainage systems (SuDS) features which form part of the drainage strategy for the application site to ensure that 1 in 100 year flood events + climate change could be accommodated within the proposed development without causing flooding in on-site and off-site areas.

The application site red line boundary was expanded to include the site access points to ensure that the proposed development would deliver the necessary upgrades to the existing highway network, in turn mitigating potential impacts relating to transport.

The height of the noise bund in the western corner was confirmed to be 5m in height and the landscaping strategy was amended to extend the bund along the northern boundary, avoiding existing trees to be retained and their root protection areas. This had the benefit of addressing potential visual and noise impacts to the residential receptors to the north-west of the application site.

An additional access point was added at the south-east corner, off Ridleywood Road, to allow access to a Primary Substation (PSS) proposed adjacent to Unit 2.

During the final design stages, the potential requirement for on-site waste water treatment was also explored, notably with regard with the need to reduce potential phosphate impacts on the River Dee and Bala Lake Special Area of Conservation (SAC). An option for an on-site waste water treatment strategy was developed and it was confirmed that inclusion of an on-site solution would be feasible, if required.

The final illustrative masterplan is presented in **Figure 5.5.1**. This masterplan has formed the basis of the proposed masterplan for the detailed component of the proposed development (Figure 4.3.2: Proposed Masterplan, Chapter 4 *Proposed Development*) and the scheme parameters for the outline component (Figure 4.3.13: Parameter Plan, Chapter 4 *Proposed Development*). Further information on the proposed development is provided in Chapter 4: The Proposed Development, ES Volume II.



FIGURE 5.5.1
Final Illustrative Masterplan Layout