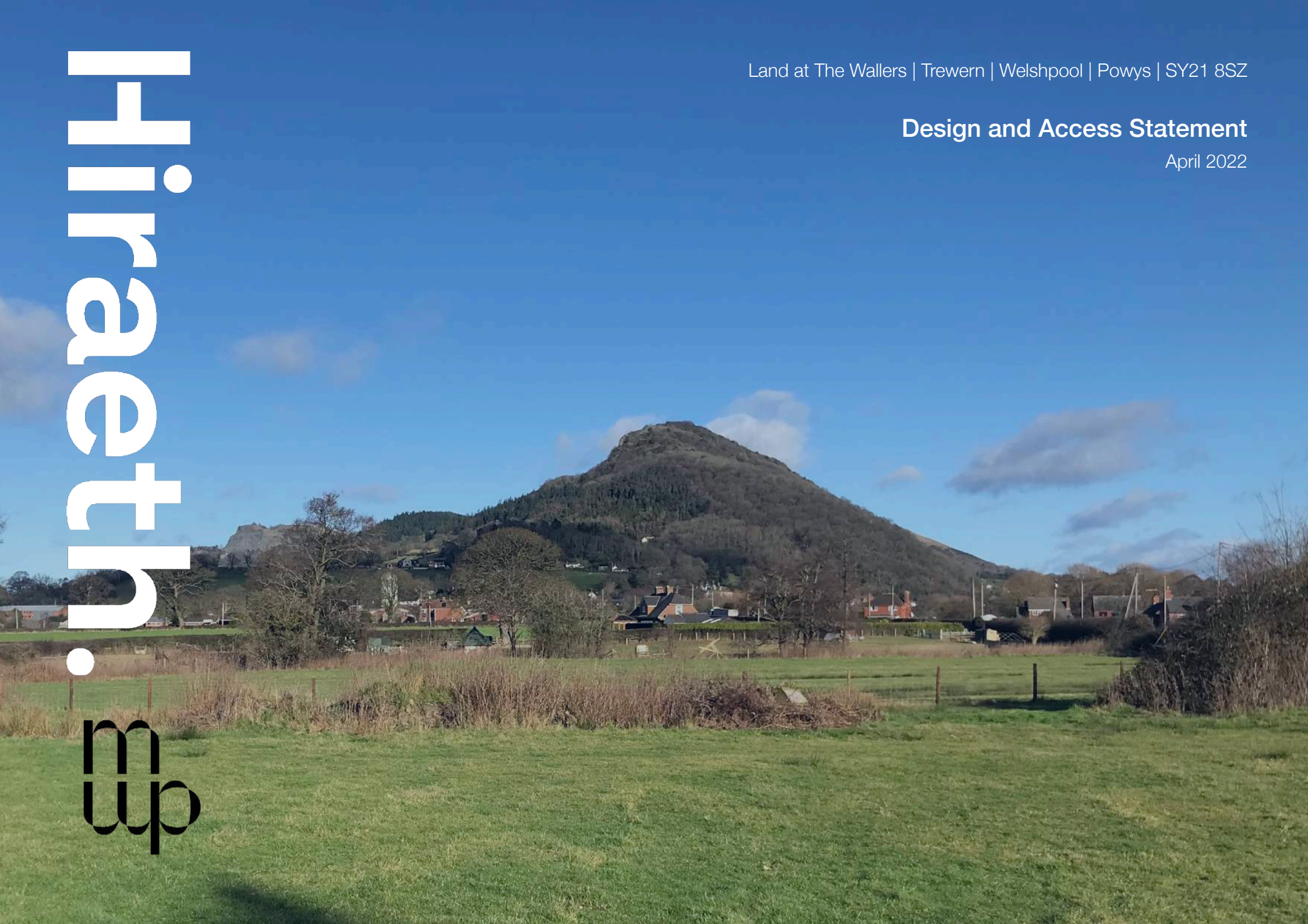


Design and Access Statement

April 2022



FOREWORD

Address:

Land at The Wallers, Trewern
Welshpool
Powys
SY21 8SZ

Grid Reference (NGR)

E 327315, N 319673



///calm.survey.correctly

Unitary (Local) Authority | Powys County Council
Community | Trewern Community Council

Listing / Designations

The site sits within the development boundary of the village of Trewern. Where the proposed site extends beyond the development boundary, the land is designated a Sand and Gravel Category 2 Resource Safeguarding Area and Sandstone Category 2 Resource Safeguarding Area in the LDP. There is no applicable Listing and the site is not within a Conservation Area.

Hiraeth Architecture

Architects specialising in the conservation of historic buildings and design within sensitive or protected environments.

This document has been produced on behalf of **Mid Wales Property Ltd** to support a planning application to Powys County Council regarding proposals for the residential development of 19 affordable dwellings on the land adjacent to The Wallers in Trewern, near Welshpool.

It is to be read in conjunction with the associated information and drawings pertaining to the scheme, as detailed on the attached drawing issue sheet.

Ownership

The land at The Wallers is within the private ownership of Mid Wales Property Ltd. Mid Wales Property Ltd is a Contractor and Developer organisation founded in 1998 by their Director Steve Bowen following his extensive career as a chartered quantity surveyor and project manager. They embody the professionalisation of the construction industry and have developed a proven ability to deliver highly sustainable and valuable projects for their clients.

To arrange a site visit, please contact the agent using the following details:

Dr Rob Thomas

Hiraeth Architecture Ltd

The Maltings | East Tyndall Street | Cardiff | CF24 5EA

T. 02920 351645

E. rob@hiraetharchitecture.co.uk

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Report Issue Record

Issue	Date	Revision	Author	Checked / Authorised by
PAC Issue			CS	RT



Aerial View of the land adjacent to The Wallers in Trewern.



INTRODUCTION

Overview

This document has been prepared by Hiraeth Architecture on behalf of Mid Wales Property Ltd (MWP) to support an application for planning permission to Powys County Council regarding proposals for the residential development of 19 affordable dwellings on the land adjacent to The Wallers in Trewern, near Welshpool.

The site is currently vacant and comprises a large area of poor agricultural land of approx. 0.48 hectares. The site sits in the context of existing residential developments adjoining and opposite, and is predominantly located within the bounds of the development boundary of the Powys Local Development Plan. A portion of the proposed development site extends beyond this designated area, however, it is considered that under H5 (Affordable Housing Exception Sites) it offers a logical 'rounding off' of the development boundary within the constraints of the 'Low risk' line shown in the Flood Risk Assessment Map.

An extant permission was approved in November 2019 confirming an outline planning consent for 5 houses with new access on a portion of the proposed site.

The applicant has identified a local need for a mix of 1- 4 bed quality affordable housing. MWP therefore wishes to develop the site to provide a mix of housing types, including short terraces and semi-detached properties over 2 storeys, to provide a development total of 19 dwellings and associated parking and landscaping.

The proposal represents a change of use from agricultural land (operating under Sui Generis use class) to C3 Dwellinghouses. It is considered that this would compliment the surrounding setting of residential development, and align with the Powys Local Development Plan which identifies the village of Trewern as a key settlement and an appropriate location for housing development, with good connectivity to Welshpool and Shrewsbury.

The proposal includes the provision of a new access road to the development, providing a visibility splay of 120m in both directions, suitable for a well-lit road.

The proposal seeks to offer a positive enhancement of the village of Trewern. It aims to achieve a high standard of design, with careful consideration given to detailing and materiality in keeping with the character of the local area, whilst making every effort to ensure high standards of energy efficiency and low carbon consumption.

VISION

The proposals seek to offer a positive enhancement of the village reflecting its rural setting to provide a mix of new homes set within gardens and shared amenity spaces that complement the surrounding local area.

The proposals seek to deliver new high quality, low carbon affordable housing in accordance with the Passivhaus Standard, combining a high performance fabric with non-fossil fuel energy sources whilst seeking low embodied carbon construction solutions.

By introducing planting and landscaping to the site, the proposals will encourage a retention of wildlife and ecology on the site whilst minimising the visual dominance of car parking and highways.

Development that seeks to enhance local character and the distinctiveness of the village and surrounding landscape through high quality design



Credit...

Delivery of quality affordable homes, providing a mix of housing types and tenures to meet local needs



Prioritise the health and well-being of residents, with the inclusion of shared & private amenity spaces and provision for cycle facilities



THE BRIEF

Hiraeth Architecture has been commissioned by Mid Wales Property Ltd to develop proposals for the residential development of the land adjacent to The Wallers in Trewern near Welshpool.

The proposals therefore look to address the following aims:

- Provide a viable sustainable use for the redundant agricultural site and provide high quality, low energy affordable homes, of a mix and tenure to meet local needs.
 - Homes are designed in accordance with the Welsh Government's *Development Quality Requirements 2021 : Creating Beautiful Homes and Spaces* and Lifetime Homes.
 - Assessment of affordable housing need in the locality has confirmed a demand for 1 - 4 bedroom homes with a priority for 2 and 3 bedroom dwellings.
- Address energy demand by providing a high performance building fabric and capturing the opportunities of improved access to natural light and solar gain through the provision of carefully situated openings and orientated living spaces. Any proposals should attempt to address sustainable principles from the outset by adopting a general approach to reduce the buildings' carbon footprint, by sequentially looking to:
 - Reduce the amount of energy that the building uses and loses;
 - Maximise the free gains that are available to the site;
 - Address the energy source.
- Provide a new safe highway access from the classified road in to the site, with provision made for the turning of refuse vehicles etc, in accordance with local and national guidance.
- Provide an exemplar of affordable residential development within the context of a sensitive rural landscape.



OS Map view of the land adjacent to The Wallers in Trewern

SITE AND CONTEXT ANALYSIS

Site Location and Context

The land at The Wallers is located in Cefn, Buttington (*Tal-y-bont*), which forms part of the village of Trewern in Mid Wales. The site sits directly adjacent to the A458, the main carriageway that connects Welshpool to Shrewsbury.

The community of Trewern is described in the Powys Local Development Plan as a 'Large Village' and it includes the villages of Buttington and Middletown. The community has a population of 1430 (Census, 2011). The development site is situated 5km northeast of Welshpool, 22km west of Shrewsbury and 2km west of the Wales-England border.

A dominant local landscape feature is the Breidden hills, the closest and tallest peak being Moel y Golfa (1,322 ft) rising just 1.5km to the north east. The Afon Pwll Trewern passes directly to the north of the site. This watercourse connects to the River Severn which follows a course 1.5km to the west.

The site benefits from a prominent road-side position in close vicinity to Buttington Trewern County Primary School and regular bus transport links.

The vicinity is dominated by residential use with the exception of the school, and many incidences of in-fill development have occurred as packages of land have been sold for development in response to local need. A development of 40 dwellings on a parcel of land adjacent to the school has recently received outline planning approval (21/0577/OUT.)

Description of the Site - Topography, Features, Boundaries

The principal boundary follows the A458 in a north-east direction and is defined by a thick hedge and a raised bank up to a grass verge at the road edge. Electricity poles and overhead cables follow this edge.

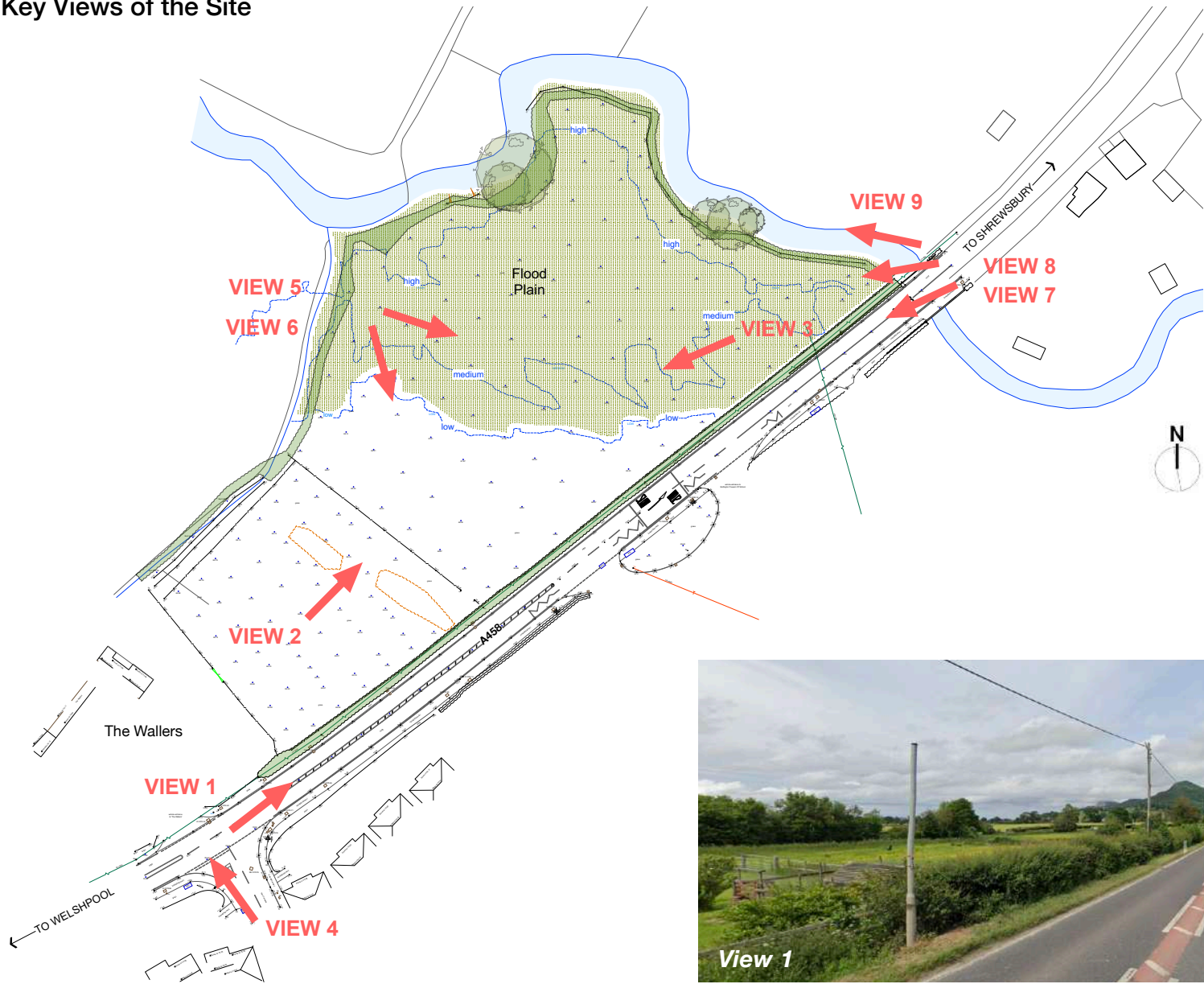
The site is currently accessed through a gate within a timber post and rail fence along the south west boundary with The Wallers. The north-west boundary is defined by a steep bank down to a natural watercourse tributary to Afon Pwll Trewern and similarly the north boundary follows the natural topography of the meandering Pwll Trewern itself until it meets the A458 at Trewern Bridge. The edges of the site that follow the watercourses are steeply banked with dense scrub vegetation.

The site is roughly rectangular but splays out towards the north, following the natural boundary provided by the watercourse. Ground levels slope gently downwards towards the north, with a short bank up at the edge of the trunk road. The land is predominately grassy paddock with a few isolated trees along the natural north west and north east edges.

The site benefits from panoramic views of the open country side in all directions, with the most dramatic aspect facing north-east towards Moel y Golfa and the Breidden hills.

At present, the thick hedge that runs the length of the south-east boundary provides a visual barrier to the busy and noisy A458 which has a steady flow of heavy goods vehicles throughout the day.

Key Views of the Site



Topographical Survey of the site showing existing levels and boundaries.

Site Plan is overlaid with with the NRW published flood lines

Site Plan is annotated with key views presented in the following pages of this document





Existing Site Photos | Top left clockwise : View 2 looking north-east towards Moel y Gofa; View 3 of The Wallers; Panoramic View 4 looking south-west





Existing Site Photos |
*Top left clockwise :
Views 5 & 6 across the
site towards the
south-east boundary
with the A458; View 7
of this boundary from
the road looking
southward; View 8
looking towards the
site from Trewern
Bridge; View 9 of Pwll
Trewern at the north
edge of the ownership*



Character Context: Landscape

There is no town or village character appraisal that specifically reviews the character of Buttington or Trewern.

Powys County Council are in the process of producing a Local Landscape Character Assessment. In the interim, LDP Supplementary Planning Guidance, 'Landscape' as drafted in January 2019 is available, giving guidance on how development should seek to protect, preserve and enhance the distinctive landscapes of Powys.

LANDMAP provides a resource for understanding the distinctive character of specific landscape areas.

From this source it can be understood that:

- the site sits within a 'Flat Lowland / Levels' Visual & Sensory Landscape; being a significant open valley with patchwork of field parcels and numerous field boundaries of established hedgerows.
- Open Skys dominate with wooded sides fringing the valley basin.
- The rural agricultural irregular fieldscapes contribute to a rich historical landscape character, being probably of medieval or post-medieval origin, with dispersed farms and cottages and nucleated church settlements of the same era in Buttington and Middletown.

A dominant local landscape feature is the Breidden hills, the closest and tallest peak being Moel y Golfa (1,322 ft) rising just 1.5km to the north east of the site. The Afon Pwll Trewern passes directly along the north of the site and on join the river Severn. The medieval Offa's Dyke and late 18th Century Montgomery canal add historical and cultural/social value to the contextual landscape.



In an assessment of culturally how people connect to the landscape, the wider area is further characterised by:

- attractive long distance views both outwardly to upland areas and inwards across the levels;
- A perception of tranquility, although becoming more disturbed in urban areas;
- A strong sense of place and local distinctiveness, although the qualities of this are undefined;
- An overall 'Moderate' evaluation, with outstanding qualities of some areas lessened by association with urban areas and the heavily used road corridor.

Character Context: Village

The immediate context of Trewern is predominantly modern red brick, gabled or hipped two storey dwellings that are conventional in appearance and reflect modern detailing of the last 20-30 years: PVC casement windows, fibre cement tiled roofs, engineering brick course detailing, through-colour render to elements of the facade, reconstituted stone sills.

The dwellings are arranged in a variety of forms - large detached, groups of semi-detached, short runs of aligned or stepped terraces and individual bungalows. The landscaping is dominated by wide grass verges, private driveways and gardens defined by close boarded fencing to the rear.



There is a scattering of older dwellings directly along the main road, reflecting a by-gone era before heavy goods traffic came to dominate and changed the way dwellings related to the street.

These older buildings present traditional details: symmetrically composed facades, low eaves and clipped verges, brick chimneys. The modest two storey dwellings also set the tone with red brick facades and gabled slate roofs, though some are now painted and with modern roof coverings. They are very exposed now to vibration and noise of the road.



The immediate village is mainly composed of closed estates with a dominance of tarmac roads and driveways.



On the outskirts, larger individual dwellings tend to be set back from the road, shielded behind thick hedgerows and vegetation, so that only the tops of these dwellings are visible. The defensive boundaries of dense vegetation are broken occasionally by openings for driveways. This arrangement makes a lot of sense in the context of the busy main road, providing shelter, protection and privacy, but can diminish a sense of community.



Housing estates turn their back to the main A road and frontages address the minor access roads instead.



Character Context: Major Road (A458)

A dominant feature that characterises the village is the A458. It is a fast road with continual movement of heavy goods traffic causing noise and vibration.

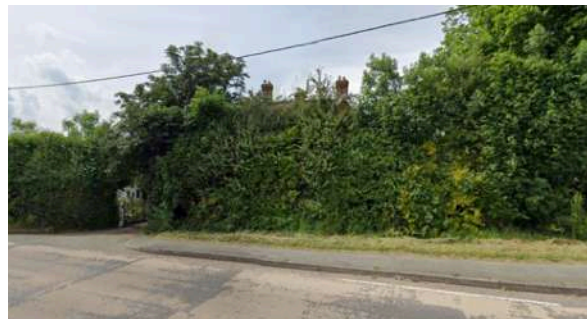


Above: Stretches of the A458 are very open in character, offering broad panoramic views from the main road out across the lower plains with the dramatic backdrop of the Breidden hills in the distance. This open aspect closes in as the road passes through hamlets and villages as tall dense hedgerows form defensive boundaries to residential properties for protection and privacy. The vistas become narrow and directional, punctured by openings for minor roads and driveways.



Below: The site is located on a part of the A458 where the aspect is relatively open with broader views of the surrounding landscape and Breidden hills. Nonetheless, the existing thick hedge along the road boundary does provide a barrier to views to the west.





Above: The prevailing character for dwellings located along the main road is for them to be set back, shielded by high hedgerows and vegetation with punctured openings for gateways and driveways. Sometimes just a roof or chimneys give any indication of the buildings.



Left: In a development close to the site, the street frontage has a buffer zone of grassy banks, with houses set back from the road but without shielding vegetation. This means the houses feel rather exposed to noise and vibration but the arrangement helps to provide a sense of arrival in the village and a marker for the entrance to the estate behind.



Below Left: Some older dwellings in the village are fronted directly onto road, representing an era before the modern heavy traffic. These dwellings feel exposed and hammered by noise and the vibration of passing heavy goods vehicles at speed.

Character Context: Local Distinctiveness

In order to gather a sense of enduring local distinctiveness, it is helpful to look wider at the older hamlets and dwellings that have been part of the landscape and village context for much longer than the recent modern developments.

Traditional form, detailing and materiality includes:

- Symmetrically composed facades
- Brick chimneys
- Buff brick and blue brick courses and details with some flemish bond where the building is higher status
- Clipped verges
- Frontages or Gables to the main street
- Timber vertical sash windows or 2 pane casements
- Low brick/stone boundary walls
- Boundary hedges



Trewern Villa



Methodist Chapel



Grade II listed Trewern Hall (late C16th)*

History of the Site

Historic maps show that the development site has remained largely unchanged since the mid 19th Century, reflecting the historic field boundaries and natural path of the Pwll Trewen. The contextual residential development of the village has been a modern transformation occurring rapidly in recent decades. Of note, there is a well recorded on the site.

Wider Historic Context

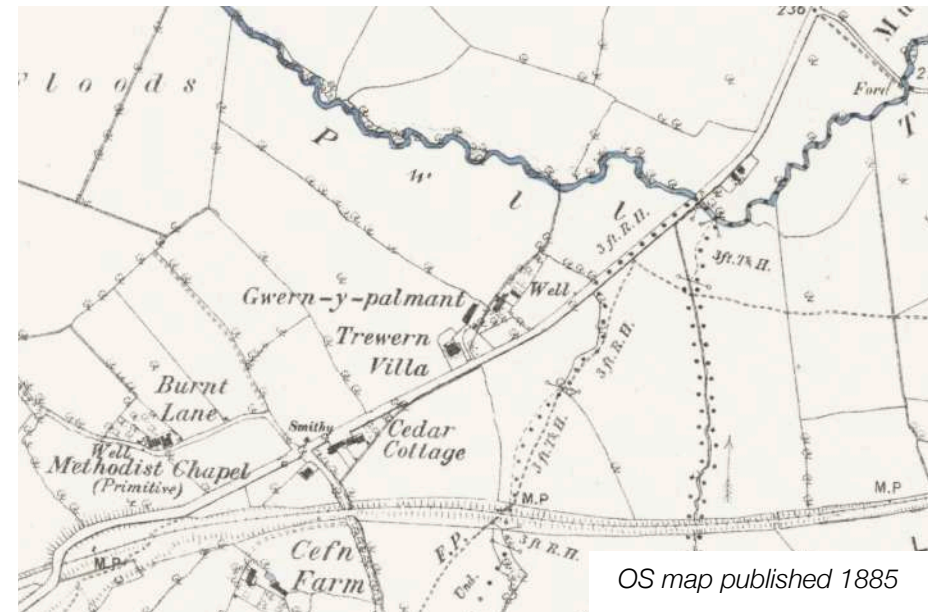
The wider area has a rich history. The sheltered natural landform has made it a focus for settlement, agriculture and transport for many centuries. Historic villages, farms, roads, bridges and fields are integral parts of this landscape. Evidence remains in the landscape for Bronze Age settlements and ritual activity (cairns), Iron Age hillforts, Roman occupation (roads and camps) and later industrial activities including quarrying, lime burning, water-powered mills and gunpowder production. The medieval Offa's Dyke and late 18th Century Montgomery canal add historical and cultural/social value to the contextual landscape.

Recent Trends

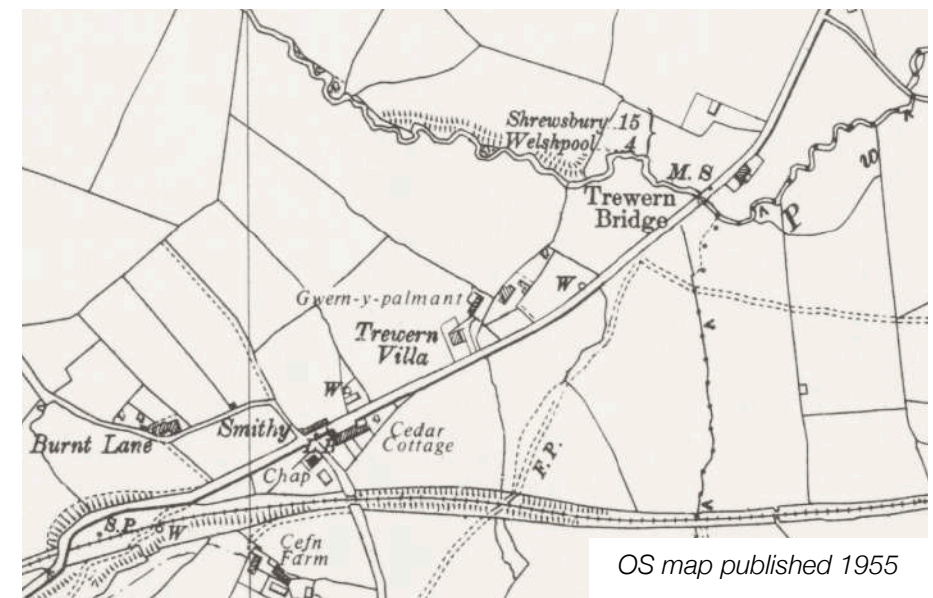
20th century changes to the landscape have included forest plantation and road improvements. Rapid residential development has characterised the village in recent years, with numerous rural sites being sold and developed to form groups of housing estates accessed from the main trunk road.

Key Contextual Historic Assets

Key contextual historic assets in closer proximity to the site include: Trewern Hall (Grade II*), Trewern Villa, Gwern-y-Palmant cottage, Cefn English Methodist Church.



OS map published 1885



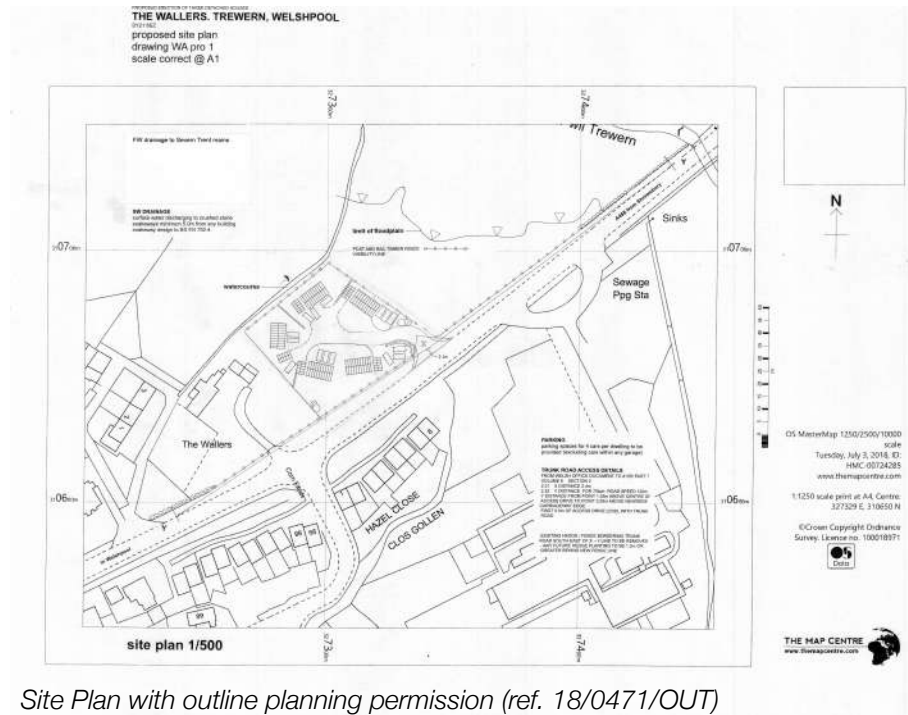
OS map published 1955

Current Status of the Site

Vacant agricultural land of a generally poor and unkempt quality.

Outline planning with reference 18/0471/OUT was secured by the previous owner in 2019 describing 5 large detached private open market homes with associated garaging, driveways and gardens.

No development associated with the extant permission has currently been progressed.



Site Plan with outline planning permission (ref. 18/0471/OUT)

Existing Access

Existing access to the site is made via the neighbouring property known as the Wallers. The extant permission permits a new T-Junction access point to the A458 providing direct access into and out of the site.

Connectivity of the Site

A pedestrian footpath navigates the south side of the A458 connecting the village of Buttington with the outlying primary school. To the north road edge forming the boundary to the south east of the site there is a grass verge with no existing connection or footpath.

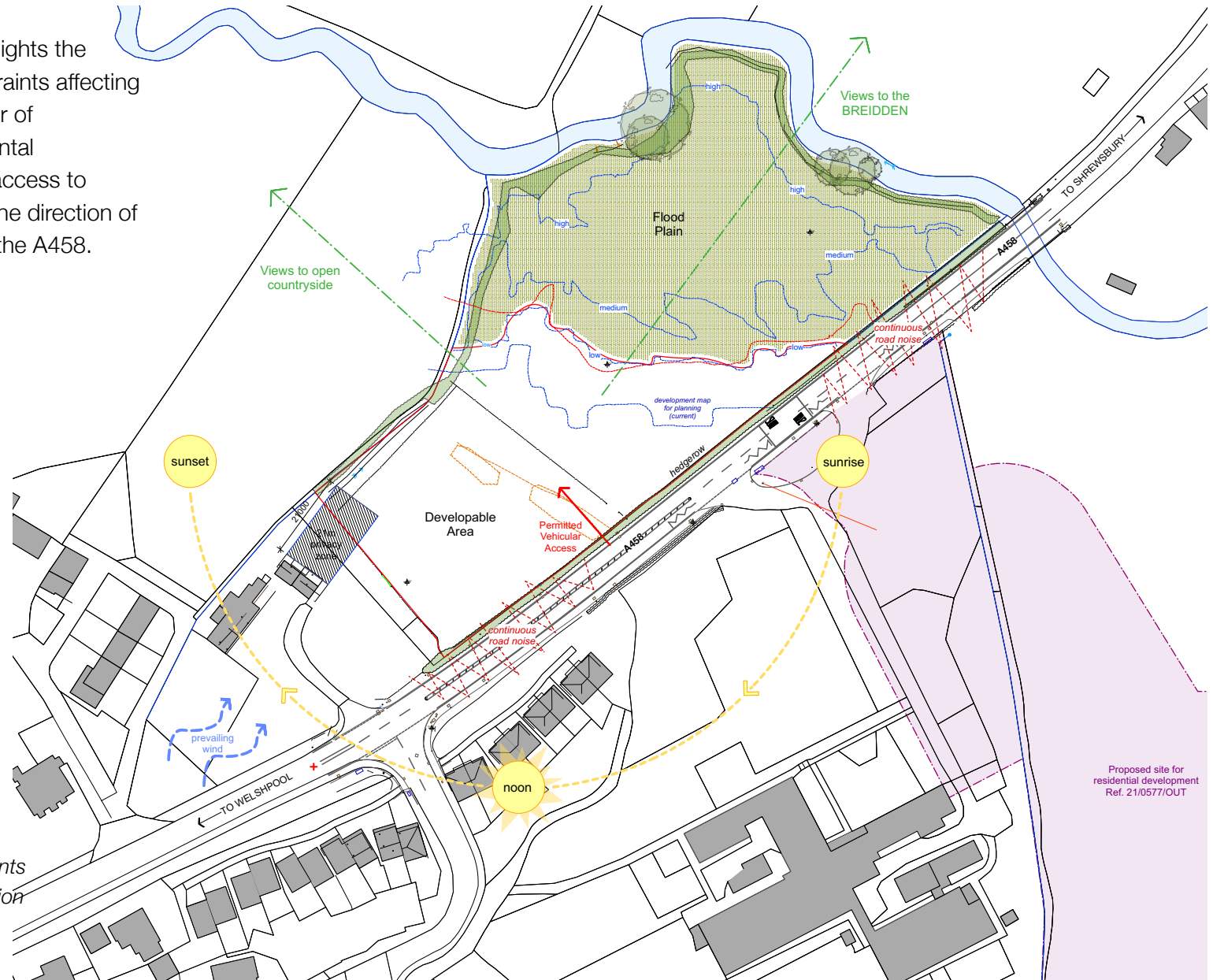
Buttington has a regular bus service providing 7 per day to Welshpool with its national railway station in 5 minutes, or Shrewsbury in 40 minutes.



The A458 has a continual flow of traffic, including high volumes of HGVs.

Environmental analysis

The site analysis plan below highlights the physical and environmental constraints affecting the site. The site suffers a number of challenging competing environmental constraints with primary positive access to sunlight and solar gains being in the direction of the primary noise pollutant being the A458.



Site Analysis showing the key elements of consideration that affect the location and environment of the land at The Wallers in Trewern. (do not scale)

Flood risk

The proposed development site is adjacent to natural watercourses therefore careful consideration has been given to the extent of development and design of sustainable drainage measures. Although landownership would allow for further development a principle limit to development has been adopted to accord with the ... flood risk line. No development therefore is proposed or extends within the ... area.





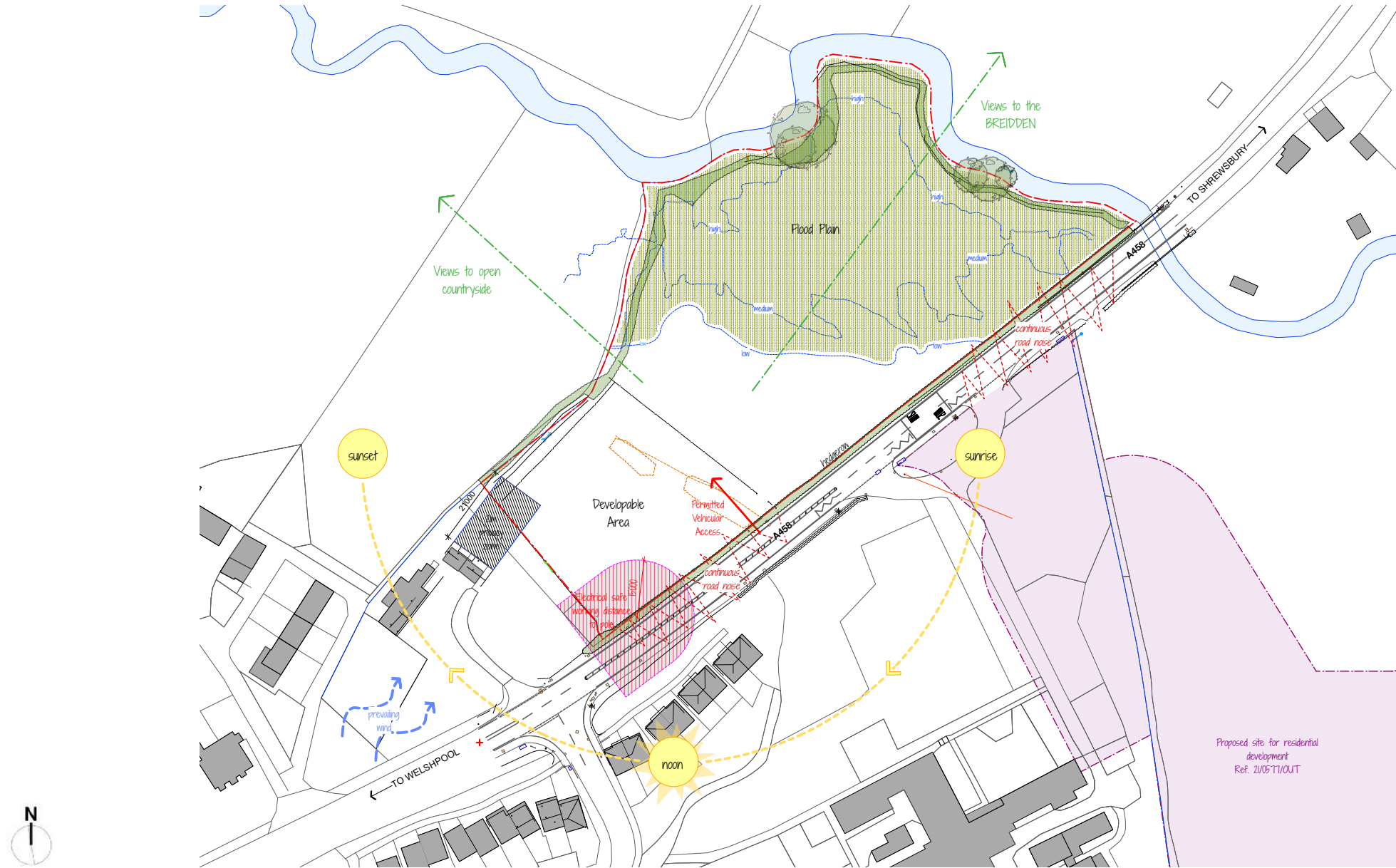
CONSTRAINTS AND OPPORTUNITIES

Constraints

- The proposals should reinforce and enhance the distinctive character of Trewern and the wider Lowland Levels landscape.
- Development should be confined to areas not at risk of flooding in accordance with flood risk data available from NRW.
- The scale and density of the proposals must be appropriate to the site context, not overwhelming the neighbouring residential properties, whilst offering financial viability in terms of the number, type and desirability of the provided accommodation.
- New buildings should be to modern standards of construction, physically responding to the building's immediate environment, and considering factors such as siting and orientation, direct solar gain, thermal mass and air tightness.
- The high quality of the proposals should be extended into the landscaped setting of the new buildings. By introducing planting and landscaping to the site, the proposals should encourage the retention of wildlife and ecology whilst minimising the visual dominance of car parking and highways where possible.

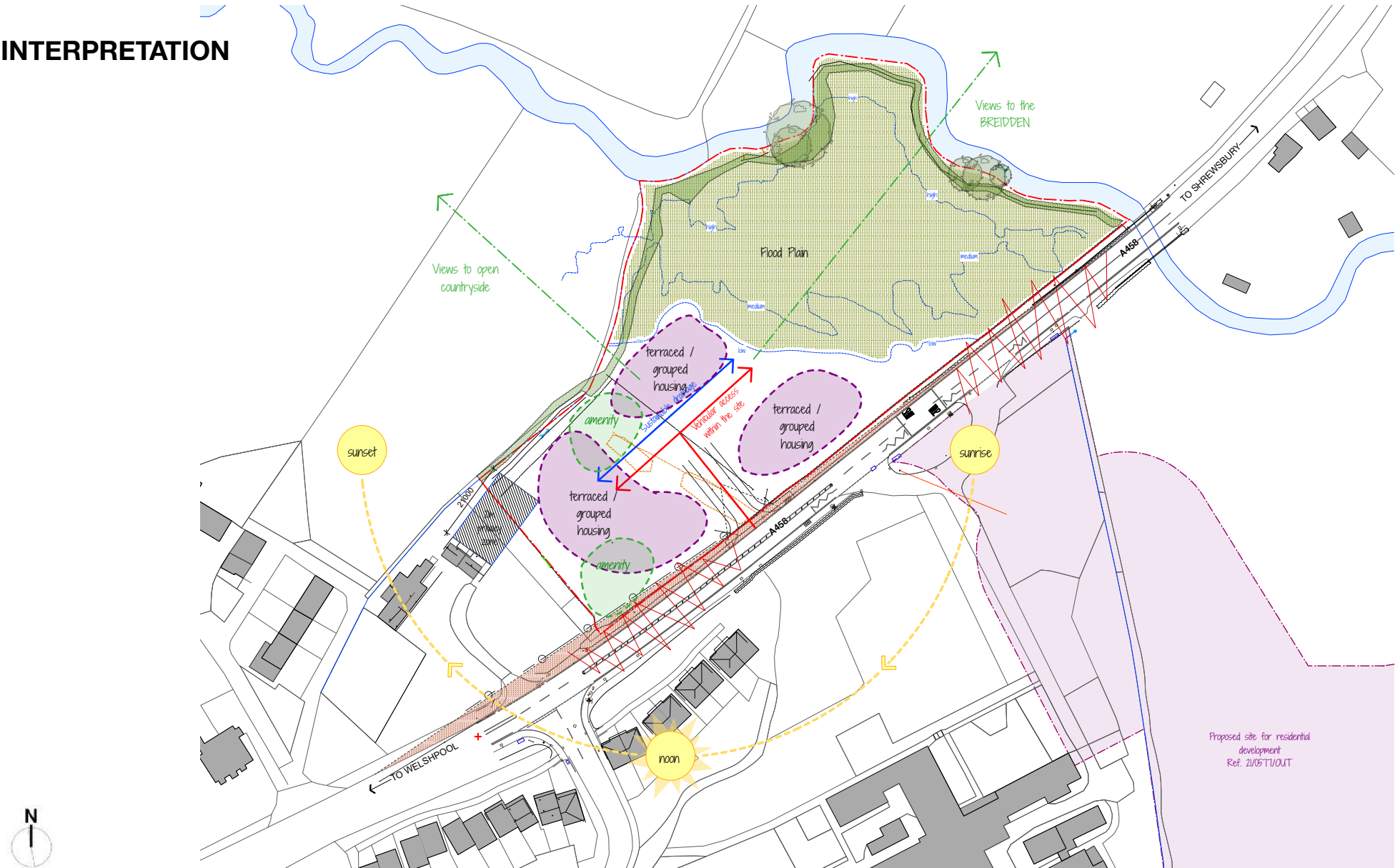
Opportunities

- To provide a scheme that enhances the aesthetic contribution of the site within the Trewern, reinforcing the distinctive character of the village and surrounding landscape through high quality design.
- To provide a viable sustainable use for a vacant site of poor quality agricultural land within the development boundary, and contribute to a sense of life and the economic prosperity of Trewern community.
- To provide high quality affordable homes, providing a mix of housing types that meet local demand, whilst generating further economic benefits within the community.
- Deliver low carbon affordable homes that combine high performance fabric with non-fossil fuel energy sources whilst seeking low embodied carbon construction solutions.



Site Analysis showing the key elements of consideration that affect the location and environment of the land at The Wallers in Terwern. (do not scale)

INTERPRETATION

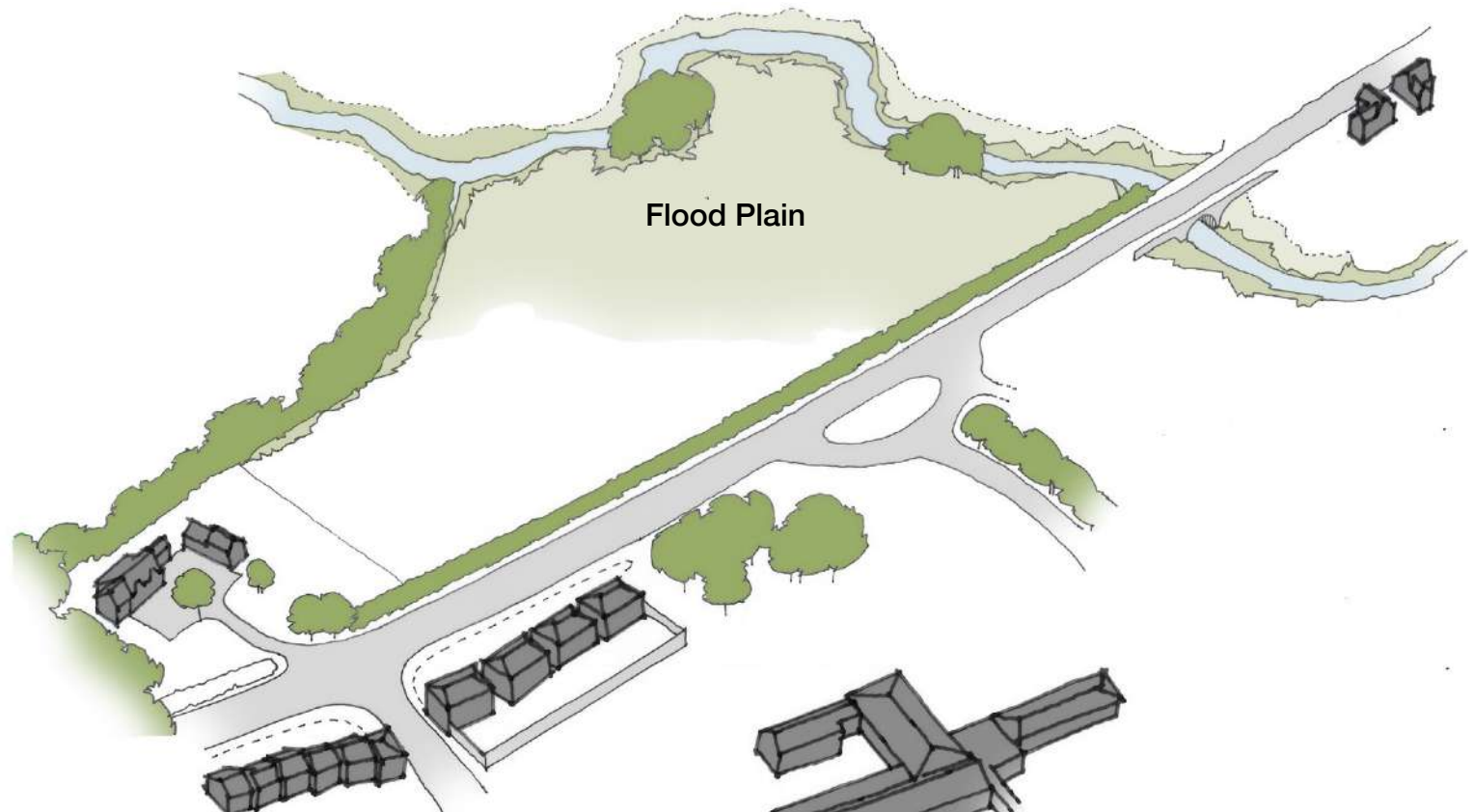


Initial strategic moves considering physical and environmental constraints

Strategic Response to the Site...

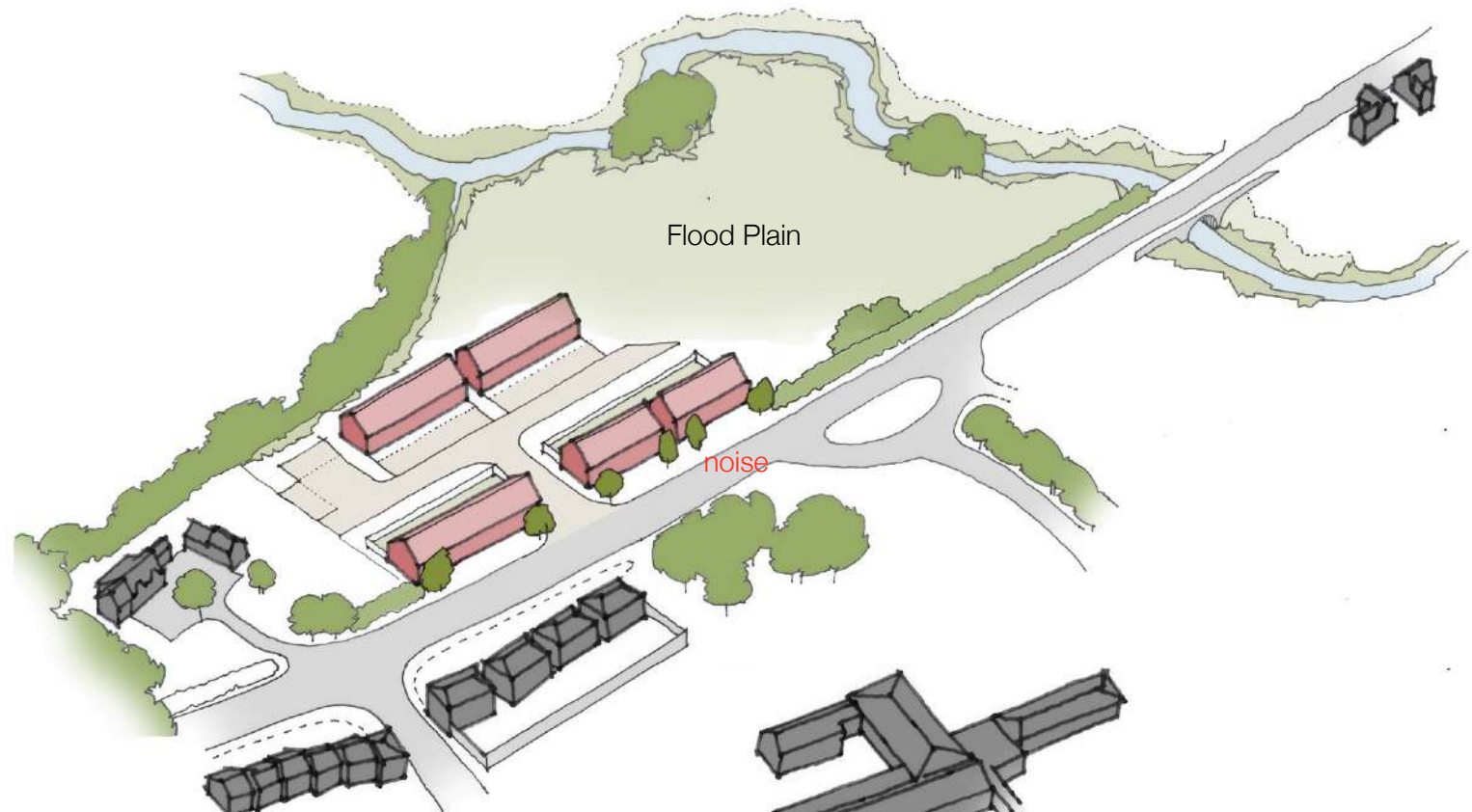
The development area is strictly defined by maintained vegetation to the south east and north west, the flood line to the north and the boundary to the south. Development options have explored an approach to arrangement based on a number of key considerations -

- Frontages or rear gardens to the principal site frontage ie inward looking or outward looking.
- Linear and ordered vs irregular but perpendicular vs random



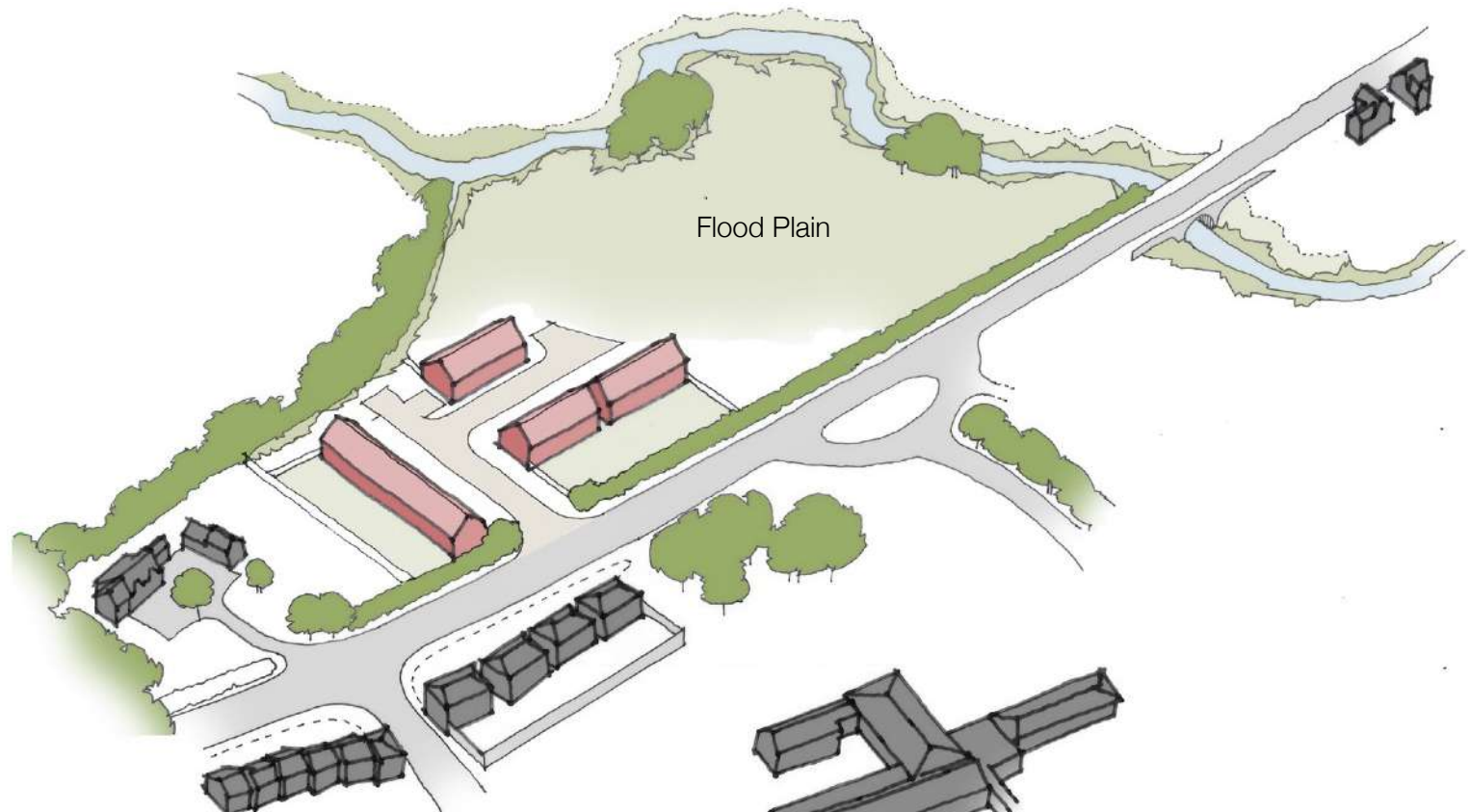
Primary elements orientated to the road with creating street frontage, with parking and gardens to the rear. Arranged as linear terraces to improve form factor.

- Good form factor
- Positive solar gains available to the principle elevation must compete with exposure to road noise and public visibility
- Loss of hedge
- Exposed to noise and traffic
- Rear parking resulting in poor access sequence to principle front doors



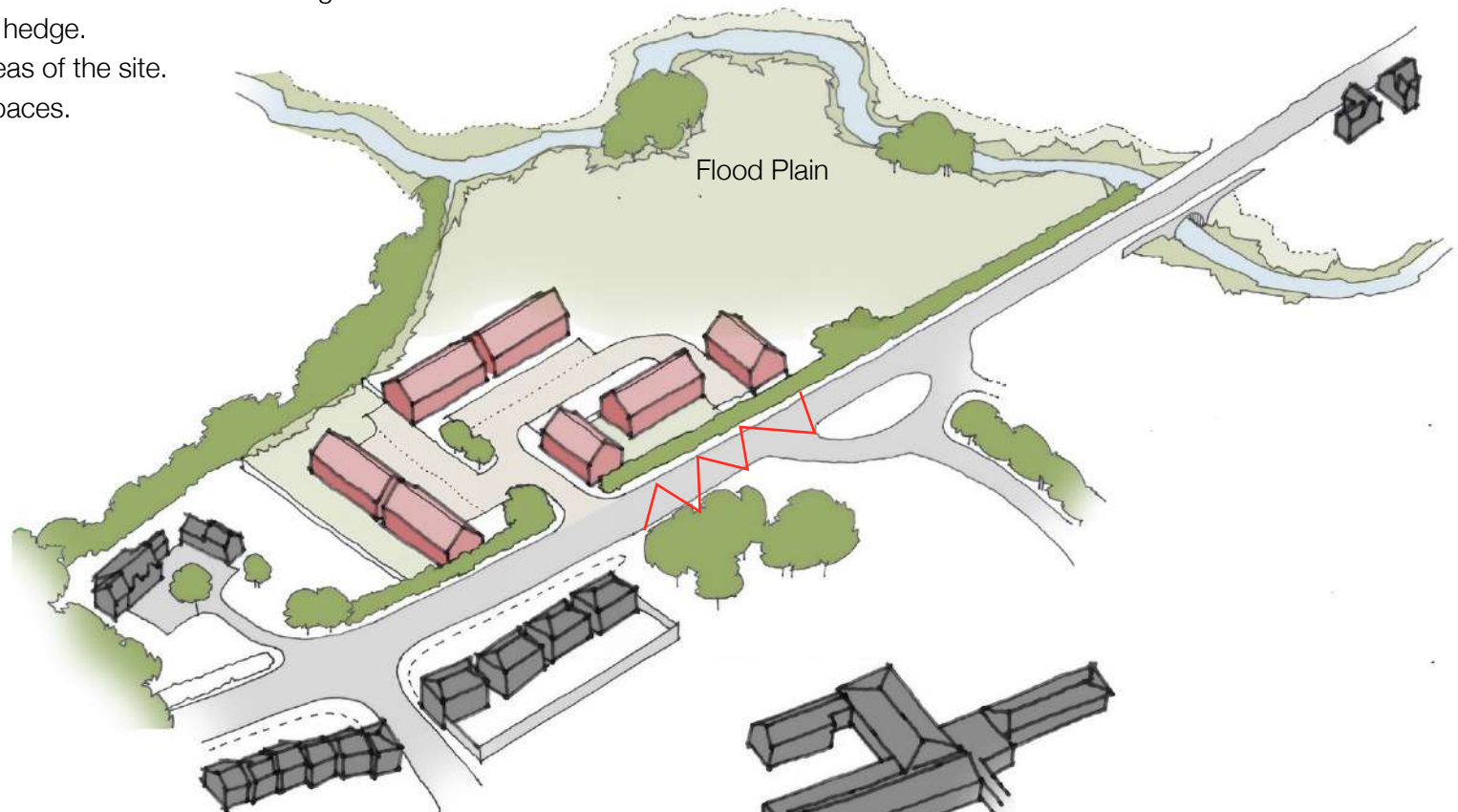
Primary elements form an east - west terrace along the access with further terraces rotated with rear elevations and gardens to the road edge. Arranged as linear terraces to improve form factor.

- Good form factor
- Positive solar gains available to the rear elevation with opportunity to ensure privacy and generously proportioned south facing glazing.
- Combination of eaves and gables to animate the road edge.
- Retention and maintenance of hedge.



Terraces are broken down in shorter 3 house terraces arranged around a variety of courtyard spaces. Orientation and arrangement maximises gables to the street frontage to generate animation and presence above the hedgerow.

- Form factor marginally increased.
- Positive solar gains available primarily to the rear elevation with opportunity to ensure privacy and generously proportioned south-east / west facing glazing.
- Combination of eaves and gables to animate the road edge.
- Retention and maintenance of hedge.
- Fewer under-utilised 'dead' areas of the site.
- Potential for shared amenity spaces.



THE PROPOSAL

Character...

An understanding of the distinctive character of the site setting, both in built form and broader landscape has played a key role in the development of proposals, which look to achieve a high standard of design and enduring quality, whilst seeking to avoid the pitfalls of creating a poor quality anonymous place or pastiche. The village is dominated by the through road with existing and proposed development sprawling along the road edge with little definition and inter-relationship. Modern developments have created a number of neighbourhoods, typically inward looking, dominated by hard landscaping and often lacking a reflection of its location. The village setting lacks a focus and centre of activity or community. The result is a general sense of anonymity and the village as a place to pass through.

Grasping a distinct character of the area and being able to translate this through a development of this scale is equally challenging. But there is a clear aspiration to create a sense of place and identity, coherent as a neighbourhood in its own right whilst starting to build on and inform the expanding village as a place of distinction set within a wonderful rural landscape. Via a consideration of an expanded area of the rural context, absorbing places such as Leighton Home Farm Estate and a variety of farmsteads sitting alongside the network of major local roads, the proposed new buildings take cues from local rural and agricultural architecture.

Form and Layout

The layout has been carefully considered to balance a confident urban density whilst remaining rural in scale and character. Taking cues from local farmsteads, the layout and arrangement embraces a hierarchy of building types arranged around a sequence of courtyard spaces. Spaces are informal, envisaged as a series of farm and barn yard type spaces punctuated by soft landscaping incorporating sustainable drainage measures. Building forms reinforce this approach capturing -

- A principal entrance building marking the site and referencing the formality and grandeur of the typical 'farmhouse',
- Larger proportioned barn-like terraces with simple, efficient and robust forms and materials, and generously proportioned openings.
- Worker cottages or outbuildings taking on a subservient form to the grander buildings on the site.

Of particular consideration is the site profile experienced from the road. The resultant arrangement provides a generous green buffer space to the road edge, retaining the existing hedgerow but presents a variety of gables and eaves profiles. This ensures the principal frontage is not dominated by a fence line or long continuous frontage that would add to the corridor effect of the existing road.

The site is considered at two storey throughout but with a variety of eaves levels generated from natural existing site levels and the hierarchy of building forms. The reveal of the principle dwelling at the site access point acts as a marker for the development which is otherwise bedded into the site, with low roof profiles just revealed above the existing hedgerow. Breaks in the development ensure key views through to open

countryside and the distant key landscape features are retained. The development is considered a natural extension to the village, rounding off the existing and proposed village and acting to incorporate the otherwise outlying primary school.

The development is simply arranged around a roughly central access point with the adopted highway proposed as a t-shaped spine. A series of zones are created –

- Zone 1 : The main range located at the south of the access - a primary dwelling with north-east facing principal frontage provides a marker for the development with a south range or wing providing 2 compact 1-bed houses.
- Zone 2 : The west terrace is a short run of four high performance dwellings targeting certification for Passivhaus arranged around a private courtyard
- Zone 3 : is a larger range combining two linked terraces of 2 and 3 bed dwellings fronting the main spine of the development and benefiting from far reaching countryside views.
- Zone 4 : arranged as a private driveway, a pair of semi-detached dwellings form the northern edge of the development, acting as a 'bookend'
- Zone 5 : providing a barrier to the main road, the south terrace provides a low, compact run to complete the development.

The arrangement of elements provides a positive opportunity to incorporate integral and discrete photovoltaic panels to the roofscape, optimised as far as possible to the south facing pitch. A range of opening types are matched to building placement and orientation, maximising positive solar gain and access to natural light whilst protecting from dangerous overheating. This balances privacy with positive neighbourhood overlooking.



Materials and Details

A soft, robust and efficient material and details palette continue this rural agricultural reference whilst avoiding the pastiche. Red clay bricks, combine with lightweight claddings, slate effect and Roman roof tiles. The resulting palette offers texture and a variety of colour and tone consistent with both the built and natural context.

The familiarity of brick as a material will help embed the scheme in the locality. Use of this material, including to define key boundary and landscape elements, builds on the local distinctiveness of the Powys countryside and references an earlier agricultural aesthetic. Selection of brick will look to the older built context of the historic hamlets and farmsteads rather than modern local housing development. Whilst adding a familiar cohesion to the proposal, the subtle differences in the texture and bonding of the brick will add shadow and depth to the scheme and bring a new, modern layer to the development.

The proposal subsequently looks to present an holistically considered approach with a palette of materials and technical details selected that -

- are robust and fit for purpose,
- reflect sustainable low carbon objectives and cost effective throughout their lifespan including where possible incorporating natural and / or recycled materials,
- reflect the rich material context of the local context.

Elements including renewable technologies, and solar shading are seen as key components of the building fabric and attention is being given to the placement and treatment of details to ensure that proposals are integrated and consistent with the building form, this critically includes

external elements including boundary treatments and hard- landscaped areas.

Access and Movement

The proposed access has been designed in accordance with Manual for Streets and national guidance published by the Welsh Government, which seeks to provide a more uniform and joined up document to be used across the whole of Wales.

The proposals seek to provide a new suitable bellmouth junction using 6m radii and 5.5m wide access road, that will be roughly centred on the principle frontage. This placement, maintaining the placement described in the extant placement is considered to provide a suitable distance from existing highway features including private driveways and the school entrance. The maximum visibility splays have been indicated on the proposed junction plan TP- AA-800 Access Arrangement.

The existing site has no current provision for pedestrians to enter the site or navigate along the road edge site frontage. The proposal seeks to ensure adequate pedestrian facilities are provided with pedestrian footpaths provided on both sides of the access point within the site and crossing points providing access to the existing public footpath to the south road edge.

The road pattern internally to the site will follow the basic principles of a traditional estate road and will be provided with a suitable turning head to allow all vehicles using the site to enter and leave in a forward gear. Suitable pedestrian facilities will be provided throughout the development.

ENVIRONMENTAL SUSTAINABILITY

A critical element of the initial design brief was to establish clear principles for the project's sustainability objectives. These objectives took the form of broad principles associated with reducing embodied carbon and energy loss, allied with the use of renewable technologies and materials that improve health and wellbeing.

In order to meet the UK's commitment for decarbonisation, our construction industry must fundamentally change its approach to design, performance and construction of our built environment. Wales has committed to a framework of carbon reduction which will result in the revision of Building Regulation standards particularly in regard to energy performance but whilst we wait to see the effects on regulations, we believe that we must be delivering buildings today that are future proofed and offer our clients a truly sustainable long term solution. We have therefore looked to develop a proposal for that seeks to improve on current building regulations and make steps towards reducing its carbon footprint.

In considering the nature of these objectives the following has been prepared and taken into consideration with the design team -

- analysis of the site's physical and environmental constraints and opportunities including sun path and shading, the natural and built environment, accessibility, ecology and vegetation.
- analysis of the buildings' use and users, considering when they will be in use, for how long and for what type of activities.
- a knowledge of existing building standards and potential future changes specifically in regard to the national and regional low carbon strategies.

- the client's environmental policy including an objective understanding of its approach to capital and whole life costs.

The UK General Building Council's Net Zero Building Framework Definition sets out a useful framework for considering and categorising sustainability priorities. It adopts four categories in order of application;

- Reduce Construction Impacts
- Reduce Operational Energy Use
- Increase Renewable Energy Supply
- Offset Any Remaining Carbon.

The framework sets out a sensible categorisation of sustainability objectives for all projects. High aspirations for sustainability do not have to increase the cost of development, and when considered in an holistic manner they will often dramatically improve whole life costs - that being the cost of construction, operational costs including energy and maintenance, and cost of demolition, disposal and / or reuse.

These aspirations have critically been established at the beginning of the project and have been maintained as a key benchmark at which the project will contribute to be tested at each stage of its advancement.

Reduce Construction Impacts - carbon emissions during the construction phase have been considered throughout the design development process:

- Materials, systems and skills are to be sourced locally as far as realistically possible, reducing embodied carbon through transportation and ensuring investment in the local economy. It is

proposed that the construction approach will be significantly focused on the use of timber and offsite construction methods.

- Low carbon construction materials and systems will be at the centre of the construction solution. Rejecting materials generated from the petrochemical industries such as insulation products and PVC based windows and doors not only reduces the associated high embodied carbon, but also encourages the use of natural, recycled and recyclable materials - materials that can offer a significant impact on occupant's health and wellbeing through improvements in acoustics and indoor air quality and comfort.
- Careful consideration will be given to material performance during technical design, construction, in use and at the end of life. Materials will be selected that are durable within the proposed context, ensuring that there is no loss of building performance throughout the building's life.

Reduce Operational Energy - energy demand and consumption throughout the buildings' life has been and will continue to be reduced through a holistic consideration of the design, specification and construction of the development above all other measures. The proposed scheme has therefore begun to address sustainable principles by adopting a general approach that sequentially looks to:

- Reduce the amount of energy that the building uses
- Maximise the free gains that are available to the site
- Address the energy source.

A 'fabric first' approach will be adopted which prioritises a high performance fabric incorporating high levels of insulation and dramatically reducing drafts and heat loss through air gaps and thermal bridging. In

conjunction, a compact plan, building form and careful placement of openings will look to maximise the efficiency of the external fabric, and the principles of fabric performance will form the basis of the specification of the proposed development going forwards.

- An analysis of site based physical and environmental opportunities has guided building orientation and form with the building, habitable rooms and openings carefully placed to maximise the potential of useful solar heat gains. Careful attention has been given to intrinsic shading, and the use of the natural environment, to ensure the high summer sun, and low east and west sun does not generate unwanted overheating.
- This approach has also looked to maximise the opportunities for natural daylighting, prioritising the key habitable spaces, with necessary artificial lighting provided by low energy systems.
- To meet the residual demand for energy, not met via heat gains provided by the inhabitants, technologies and solar gains, highly efficient systems will be combined to achieve occupant comfort. These draw on available sources that are largely renewable including an air source heat pumps, solar thermal panels, and through the generation of onsite electricity,. However, the principle of this energy strategy is to minimise demand and maximise efficiency whilst delivering comfort levels through user friendly smart systems. Careful analysis of the building's proposed function has provided the building specific characteristics for user comfort and requirements to ensure that the capacity and nature of energy systems are effectively tailored.

Increase Renewable Energy Supply

In order to deliver a 'zero net carbon' economy, the electrification of energy based on a massively decarbonised grid is critical to the Committee for Climate Change's recommendations. There is opportunity in every project to look at the supply of energy through renewable means such as solar panels supplying hot water, photovoltaics and turbines providing electricity, biomass and heat pumps supplying heat. Technologies such as these can be expensive, both in capital cost and maintenance, prone to poor maintenance and operation, particularly where there is a constant change in users and operators, and often over-sold and over-designed resulting in inefficiencies. In addition, the effectiveness of site based renewables remains a complex question if considered in the context of an industry addressing decarbonisation at a national infrastructure level, (albeit yet to be wholly positively seen in the UK). However, the development site offers opportunities to generate renewable energy and this is being considered in conjunction with proposed solar panels and/or solar hot water to assist with powering the proposal.



CONTACT

Hiraeth.

Dr. Robert Thomas

BSc(Hons), BArch(Hons), PhD, DipArch(Hons), RIBA

Hiraeth Architecture | The Maltings | East Tyndall Street | Cardiff | CF24 5EA

T. 029 2035 1645 | E. rob@hiraetharchitecture.co.uk