

PROJECT NO: 2012/02A
PROJECT: Proposed New Dwelling
LOCATION: The Former Plough Inn, South Road, Plumpton

ARCHITECTURAL DESIGN STATEMENT

Site Location:

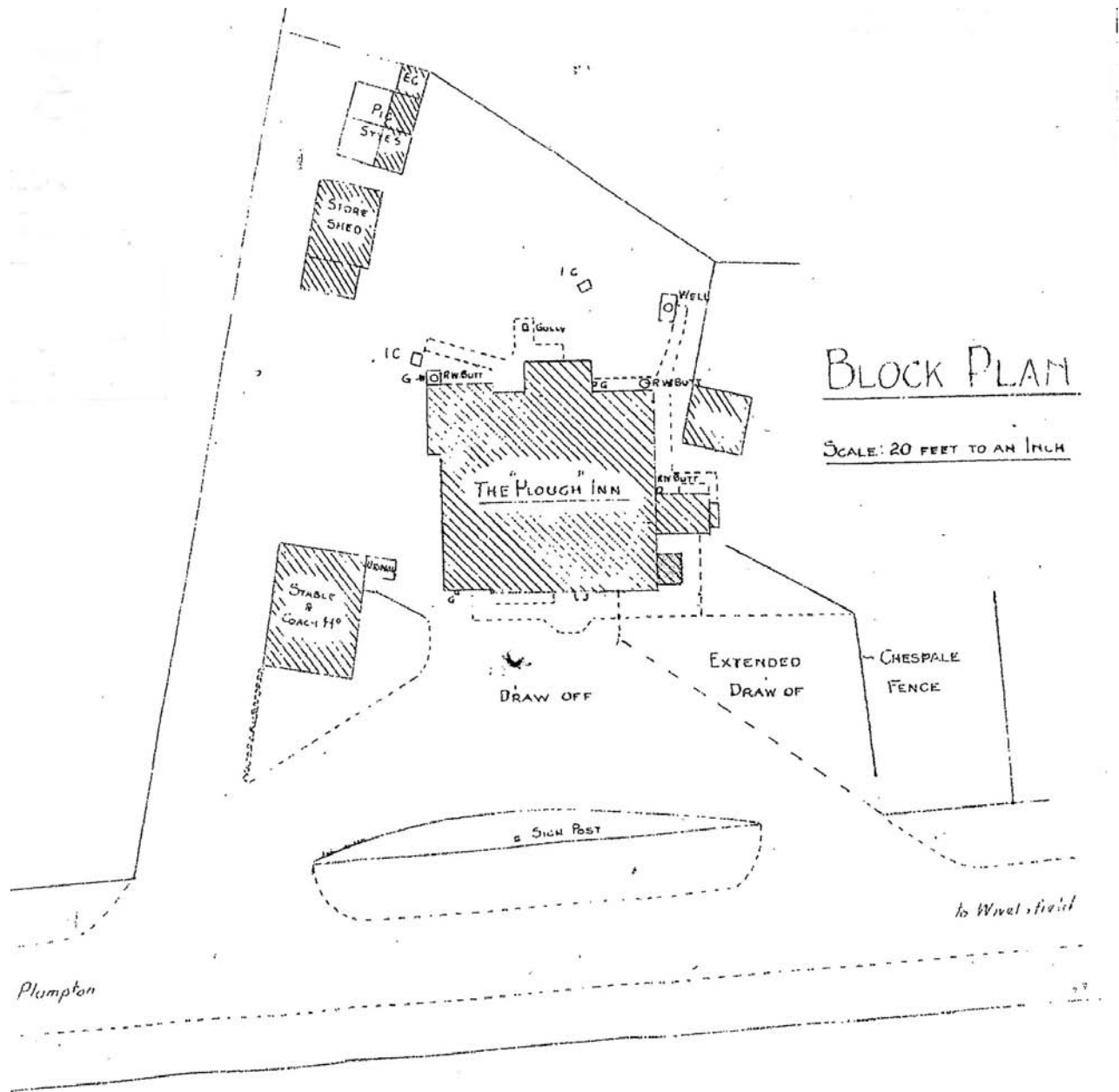
The site for the proposed house is a depot located on South Road which connects Plumpton Green to Wivelsfield Green in West Sussex. The site is currently used as a depot for the storage of tarmac scalplings and other materials derived from resurfacing roads.



Aerial view of site

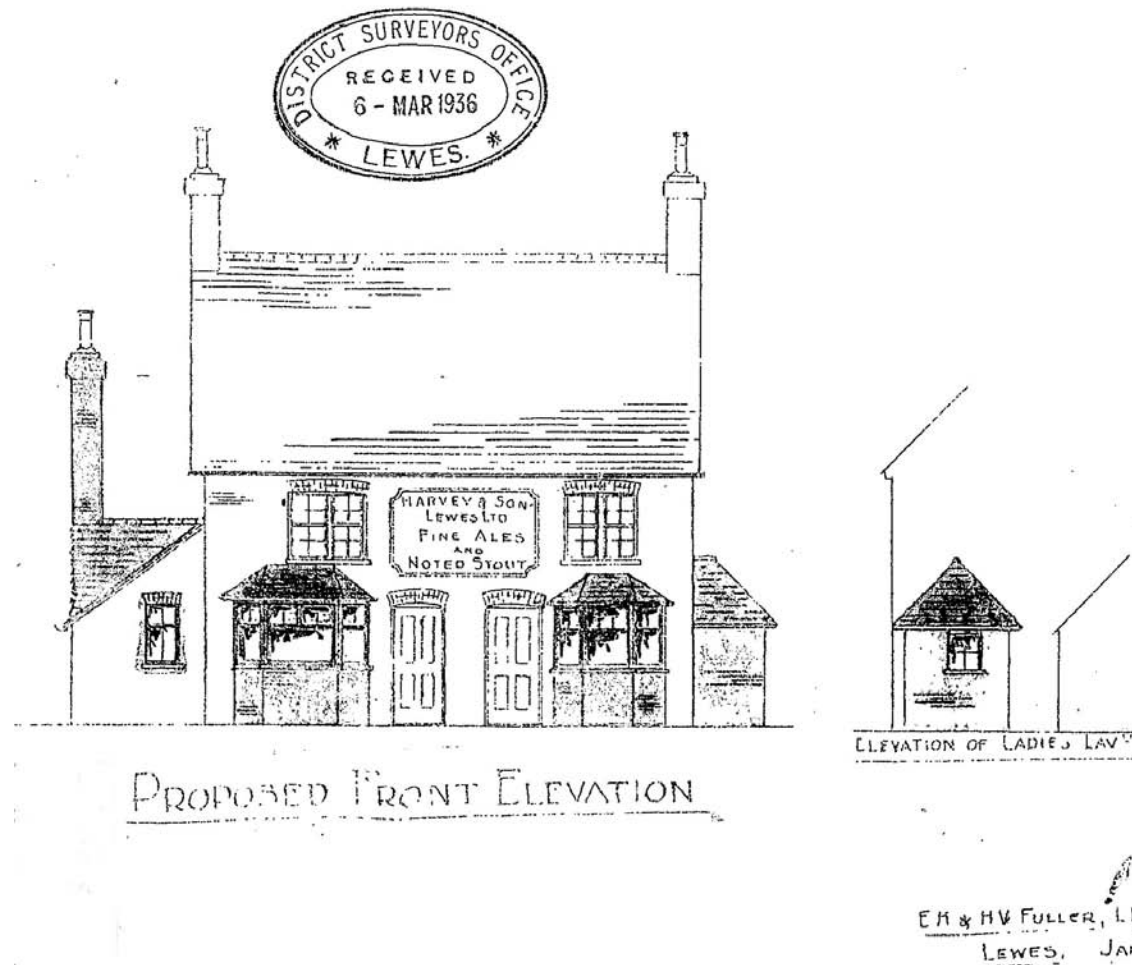
Site History:

Historic records show that site was previously occupied by a timber framed cottage dating from about 1855. Development on the site appears to have later been subject to some intensification with the construction of a bakehouse, barn, lodges and piggeries as well as a brick residence which was known as The Plough, Beer and Grocer's Shop. By the end of the 19th Century this brick residence had become The Plough Inn Public House which remained on the site until World War II.



Block Plan of The Former Plough Inn

During World War II the pub was demolished and relocated to its present location further to the south. This was to make way for a temporary grass airstrip which is still visible on the east side of South Road. Since then the site has been used as a depot for storage of materials associated with road maintenance.



Elevation of The Former Plough Inn

Site Characteristics:

The site is largely flat and accessed via a wide access point from South Road which runs along its eastern boundary. This side of the site is bounded by a hedgerow while the other boundaries are densely wooded with the northern and western boundaries bounded by a ditch that discharges to a pond located on neighbouring land to the south west.



Existing view of site from South Road

The site is characterised by a large concrete slab which covers most of the eastern half of the site with a series of enclosures formed by sleeper walls made of discarded railway sleepers. A large earth bund runs along the northern and western sides of the site. This is a man made feature resulting from the stockpiling of excess material such as hardcore and topsoil.



Existing view of Site From Site Entrance

There is a residential property, Lambourne Cottage, located immediately to the south and an old battery hen farm on the other side of the ditch to the west.

Site Analysis:

The site is currently a classic brownfield site with quite a hostile, manmade environment that offers little in terms of bio-diversity or enhancement of the natural environment.



View from Site looking east

Although bounded on three sides by a dense tree belt and a small ditch, the site is at present dominated by the following manmade features:

- A huge bund of spoil material.
- Piles of hardcore and road scalplings
- The long timber sleeper walls that create pens for separating materials.
- A large concrete slab at the entrance of the site.

Due to the size and scale of the bund, it is evident that the secluded space between the bund and the site boundary with its dense tree belt and ditch offers much in terms of opportunities for biodiversity.

This suggests that all development of the site should be restricted to the part of the site to the east of the bund on the areas that have already been subject to development.

Aim of the Project:

The aim of the project is seek a way to replace the present unsightly piles of tarmac, hardcore and detritus with a building that is sympathetic to the countryside setting and creates a truly sustainable home. A building that will demonstrate best practice of how sustainable design can transform isolated brownfield sites into truly sustainable places to live in the countryside.

Concept:

The concept of the project has developed following an analysis of the history and has been informed by the current use and condition of the site.

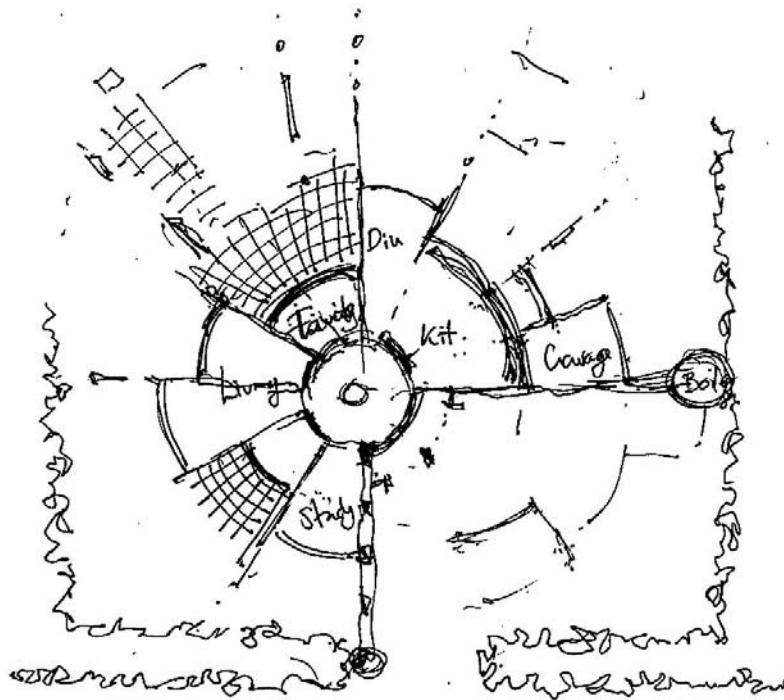
The former use of the site, albeit for a very short period, as part of a grass airstrip and the mounds of material currently stored on the site has inspired the idea that the proposed building should appear as though nature is gradually reclaiming one of the long forgotten ruins that are dotted across the county.

This concept is enhanced by the notion that the existing sleeper walls that form the pens for storage of materials could be developed into an architecture of planes with the walls of the building extending out towards the edges of the site thus grounding the building and making it appear as part of the landscape.

In order to strengthen the link with the site's past history as an air strip during WW2, the plan form has been inspired by the RAF roundel logo with the walls radiating out from the centre fragmenting the circular form to embrace the surrounding countryside and the distant views.



Image of the RAF Roundel Logo



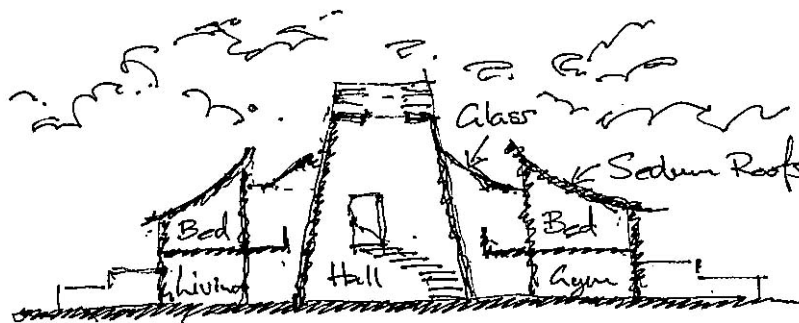
Concept Sketch Plan

Proposals:

The design for the proposed building is also borne out of the desire to apply the principles of sustainable design to the idea of creating a modern home that is firmly rooted in the existing features of the site and sits comfortably in the natural setting.

The design is a response to the present conditions of the site and seeks to develop some of the existing elements of the site into an architectural language that is site specific and an appropriate model for living in the countryside.

The existing tree belts along the southern, eastern and western edges of the site together with most of the existing earth bund on the site are to be retained to create a natural backdrop to the proposed building.



Concept Sketch Section



Concept Sketch

The design revolves around a central point that is the entrance hall to the house. This takes the form of a conical structure that is inspired by various historic structures dotted around the county. This space accommodates a simple cantilevered helical staircase and is dramatically top lit by a central 'pinwheel' rooflight.



The Sugar Loaf, Brighton

The principal two radiating walls are orientated to address the former grass airstrip and form two sides of an entrance courtyard that utilises the existing access at the eastern side of the site. This arrangement creates two sides of manmade structures while the existing trees that run along the northern side of the site and the existing hedgerow that abut the road complete the sense of enclosure around the courtyard.

All of the radiating walls, which are formed from stabilised rammed earth and used as cross walls, are generated from this point. These walls step down in height as they extend further out into the site connecting with the existing bund and linking to new elements on the site such as the folly and the woodchip boiler/pellet store.

The extension of the radiating walls out towards the existing bund helps to ground the building and creates a series of enclosures in the landscape where allotments and planting beds provide a series of transitional zones between the house and the surrounding landscape.

These walls also mimic the sleeper walls that are currently used to pen the materials that are stored on the site and are constructed using the sifted spoil material that forms the existing bund. Geotechnical research has confirmed that the constituent materials of the bund are appropriate for use in rammed earth construction so long as the material is sifted and graded to remove any potential contaminated material.



Detail of Rammed Earth wall

The walls between the radiating walls would consist of a combination of highly insulated, timber framed, panels clad in locally sourced coppiced sweet chestnut cladding and triple glazed, thermally broken, powdercoated aluminium window system.

The aim is that the exterior of the rammed earth cross walls will be externally insulated and clad in dry stone walling while the interior surface will be sealed and exposed internally to reveal the beauty of the material and provide the building with thermal mass.



Detail of dry Stone Walling

The ground floor of the proposed building would be a highly insulated concrete construction with underfloor heating and polished concrete finish. This would provide further thermal mass and create an interesting visual counterpoint with the exposed surface of the rammed earth walls.

The upper floors would be timber-framed construction with timber floors and ceilings clad in locally sourced, coppiced, sweet chestnut cladding.

The roof of the proposed building would be formed of a highly insulated, timber net construction utilising coppiced sweet chestnut finished with a natural sedum roof. This will promote biodiversity, aid the attenuation of storm water and create a soft green roof that will blend with the backdrop of the existing trees and bund.

The walls of the central core of the proposed house are to be constructed of a highly insulated timber-framed construction clad in locally sourced coppiced sweet chestnut cladding. The form of this part of the building is intended to mimic the form of some of the conical man-made structures such as oast houses and brick kilns that are dotted around Sussex. The form also provides a distant reference point to the shape of air traffic control towers which recalls to that part of the history of the site.



Brick Kiln, Piddinghoe



Oasthouses, Sussex

The forms and materials infuse the building with the sense that it belongs to the site. A feeling that it has been long abandoned and left for nature to gradually reclaim and inhabit.

The whole composition is intended to appear as if it is part of a collection of ancient, manmade structures set at the end of a long axis against the natural backdrop of the tree enclosure.



Stoney Littleton Long Barrow, Wellow, Somerset

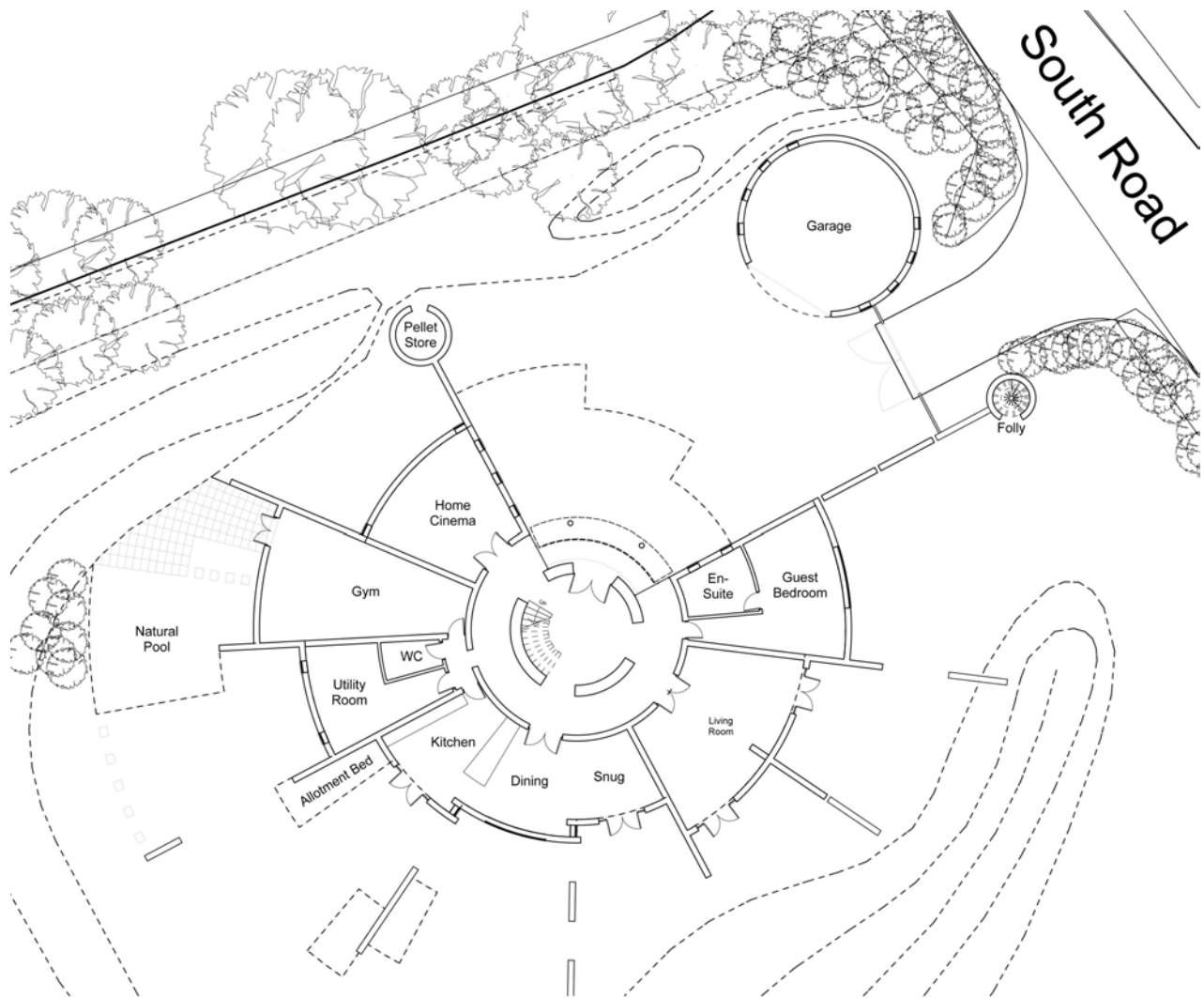
This evokes memories of some of the ancient tumuli which are dotted around the south of England and provides some reasoning for the significance created by the grass air strip and the location of the site within the wider landscape.

Layout:

The layout of the proposed site is generated from the central core that acts as the heart of the house which address the axis of the old grass air strip and is clearly visible from the entrance to the site. The central core is located at the corner of an entrance courtyard which is defined by distinct structures located at its corners. These structures accommodate a detached garage, the pellet store and the folly is positioned near the site entrance to act as a marker in the wider landscape.

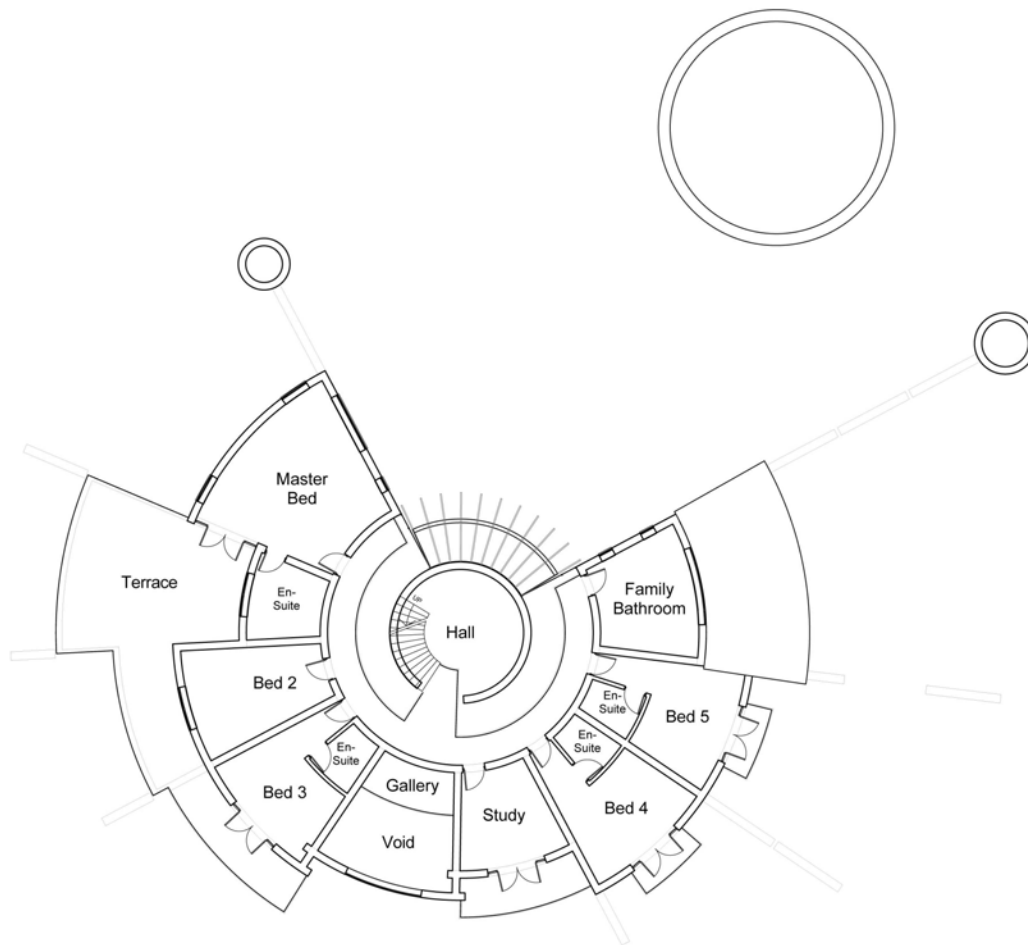
The central core functions as the heart of the house with all of the radiating walls emanating from its centre. It leads directly to the curved, top lit gallery corridor that gives access to all of the individual rooms and houses a grand, cantilevered staircase that helps to organised the house into public and private zones.

The accommodation is then wrapped around the core and arranged as rooms that extend out from the core and turn their back on the road thus addressing the bund and the tree belt beyond. The living accommodation is located on the ground floor with the main living rooms orientated towards the south-west. The ancillary accommodation such as the gymnasium and home cinema are in the cooler northern side of the site.



Ground Floor Plan

The sleeping accommodation is located on the first floor with all bedrooms benefitting from south and west facing terraces and accessed from a wide corridor that wraps around the central core



First Floor Plan

Landscape:

The landscape has been designed to be an integral part of the site with some of the rammed earth walls extending out from the house and linking with the bund. These walls root the building to the site creating a strong bond with the landscape and blurring the distinction between inside and outside.

The spaces created by these extending walls would be used as more domesticated terraces where they abut the house but would become softer and more natural where they meet the bund to create a series of enclosures reminiscent of pens for domesticated animals or field enclosures. These would be used for planting beds or allotments which would become wilder and less cultivated the further one moves away from the house.

The existing bund would be lowered and breached at the south east corner of the site to establish a strong link between the house and the tree belt beyond. The breach would appear as a swale with a natural pool at its base. This would appear as if it was the remnant of ancient ground workings on the site and continue the theme of nature gradually reclaiming the site.



Image of a swale

The entrance courtyard would be more formal and landscaped in gravel with informal groupings of larger rocks populated by indigenous plants. This would be reminiscent to some of the stockpiles of materials previously store on the site and would evoke memories of the recent use of the site.

The roof structure of the proposed house would be formed from a timber net structure made from locally sourced, coppiced chestnut thinnings that would gently sag to form soft, natural curves that would rise towards the central core. The green, sedum roof dynamically fans around the house with the height of eaves determined by how far the roof projects from the central core.

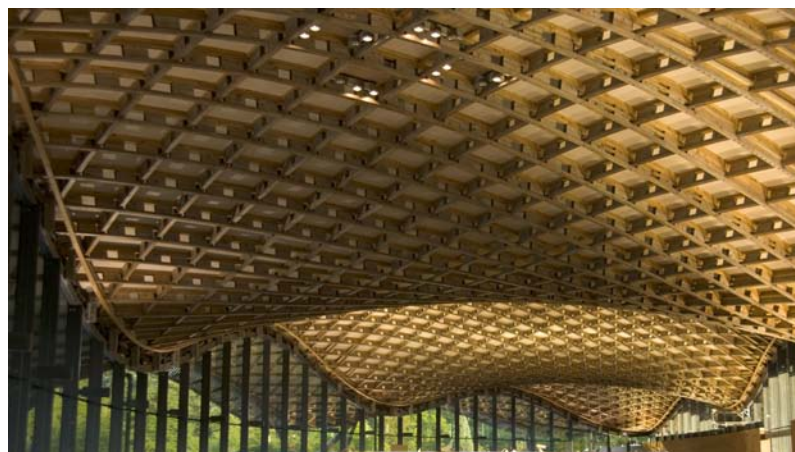


Image of timber net roof structure

Materials:

The proposed materials for the main building are as follows:

Roof; Single ply membrane roof with 'green' sedum roof



Image of sedum roof



Detail of sedum roof

External Walls 1: Stabilised rammed earth exposed and sealed internally faced with insulated dry stone walling externally.



Rammed earth walls extending out into landscape

External Walls 2: Natural sweet chestnut timber cladding on insulated timber frame construction for infill panels and entrance core.



Example of Sweet Chestnut Cladding

The whole composition is intended to create a composition where the contrast of rugged, dry stone walls and natural timber infill panels will result in a rich combination of materials that exude strength and warmth.



Example of Dry Stone Walling



Detail of Dry Stone Walling

The aim is that the proposed building will provide constant reminders of the materials that have historically been used on the site. The rammed earth and dry stone walls will evoke memories of the materials that were once stored on the site whereas the timber cladding establishes a link to trees that surround the site.

Windows Frames: Stained hardwood with sealed triple glazed units

External Doors: Stained hardwood.

Sustainability:

The proposed building is deeply rooted in the principles of sustainable design seeking to reduce the carbon footprint of the development by utilising high thermal mass, high insulation values and low embodied energy costs.

This will be achieved through a combination of the following measures:

- Reusing/recycling some of the materials that currently exist on the site.
- Specification of locally sourced sustainable materials.
- Use of passive energy design principles.
- Thermal mass from the rammed earth walls and concrete floor slabs.
- Utilisation of high insulation values.
- Use of ground source heat pump for the underfloor heating.
- Incorporation of a woodchip boiler.
- Incorporation of photovoltaic panels for solar energy generation.
- Use of the well that currently exists on the site.
- Use of a sedum roof to provide storm water attenuation and increase biodiversity.
- Provision of food growing facilities to encourage self-sufficiency.

The contamination report has confirmed that although the site has been used for the storage of waste materials from road workings for many years there is no evidence of contamination on the site.

Geotechnical research has confirmed that the constituent materials of the bund are appropriate for use in rammed earth construction so long as the material is sifted and graded to remove any potential contaminated material. The BRE Green Guide 2008 indicates that the proposed insulated rammed earth construction (element number: 1006220012) will achieve an A+ rating when used in domestic construction.

The sustainability statement confirms that the proposed dwelling will achieve at least Code 5 of the Code for Sustainable Homes and far exceed any of the requirements of the Building Regulations.

Conclusion:

The application site is an isolated site that has previously developed and is currently a brownfield site that is detrimental to the wider landscape.

This application seeks to build on the principles of sustainable design to create a house that is an appropriate model for the construction of new homes in the countryside. The use of materials and features that currently exist on the site will result in a building that is borne from the site and sits comfortable in its setting.

The proposed development will result in a vast improvement of the existing context and make a positive contribution to the area by removing an ugly, inappropriate use with an example of how a modern house in the countryside can be sympathetic to its environment and highly sustainable.



Axonometric view of Proposed House