Racecommon Quarry
Oxspring Road
Penistone
Sheffield

Design & Access Statement

A redundant plot of land that is unsuitable for agriculture

Currently used as a playground by youths (swimming, diving, drinking, drug use, bonfires, burnt out cars) all damaging to the ecology and could result in a serious accident; the proposal would help to prevent this.

The area of the site that the houses will be constructed has no ecological value.

The houses will not be seen from outside the site, therefore has no impact on neighbours or the passing public.

Two houses create natural surveillance and security for each other in line with 'secured by design' principles

The dramatic sweeping facade is achieved only with two houses; the two appear as one continuous building

Development would be part of a package to improve and manage the ecology of the site.

The development is in line with rural planning policy PPS7; 'a design should be truly outstanding and ground-breaking' and 'its contribution to protecting and enhancing the environment'

Approval of this development does not set a precedent for further green belt developments as it is unique to this site, being formed from the land contours.

The only other built example of an earth sheltered house in the area is Underhill by Arthur Quarmby in Huddersfield now nearly 20 years old. Two earth sheltered houses have been given planning approval in the Barnsley area, neither have currently been built; the only similarity between these three houses is the earth roof, each offer very unique solutions to different sites.

The building uses a form and structural system never before seen in a dwelling

This could be Barnsley's first zero carbon home, a ground breaking development that could help to encourage further sustainable development in the area in line with government policy.

The homes could be used as exemplars of zero carbon homes and contemporary earth sheltered homes, with group visits for children and adults.

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Context: Penistone

Penistone (g) is a market town on the edge of the Pennines. The buildings range from C1500 to the present day; the historical buildings are predominantly sandstone with stone or slate roofs (a);the last 15 years has seen a high number of brick built housing estates (b). Penistone is surrounded by green belt agricultural land and scattered with old stone farm houses and associated farm buildings (c) a large number of barn conversions (d) have occurred throughout the green belt. Planning permission has been given for two earth sheltered homes in the green belt near Hepworth by Architect Arthur Quarmby, designer of Underhill (f) in Huddersfield (the first earth sheltered home) these have not currently been built. Wind turbines can be seen on the horizons around Penistone with further planned (e).



a



b

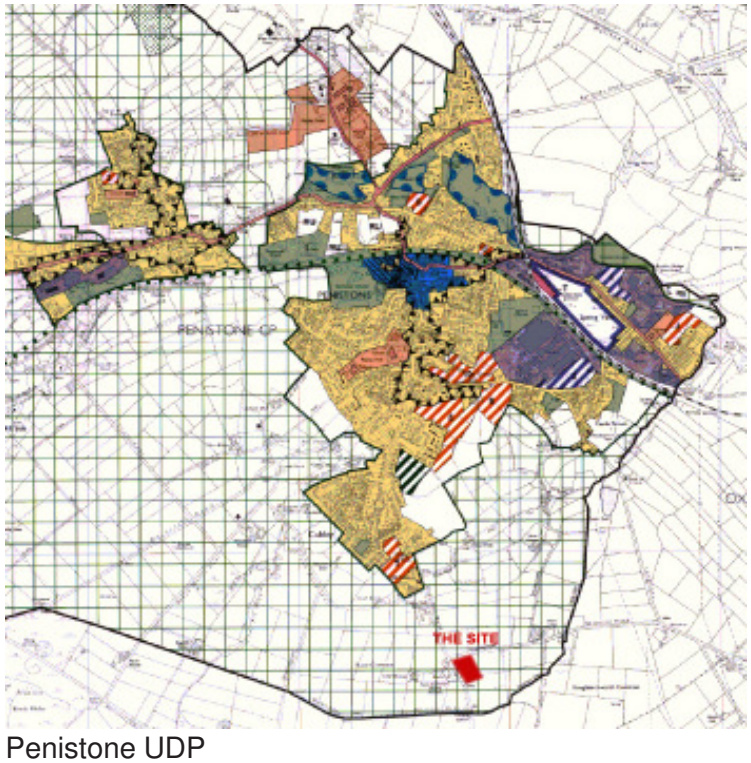

c


d

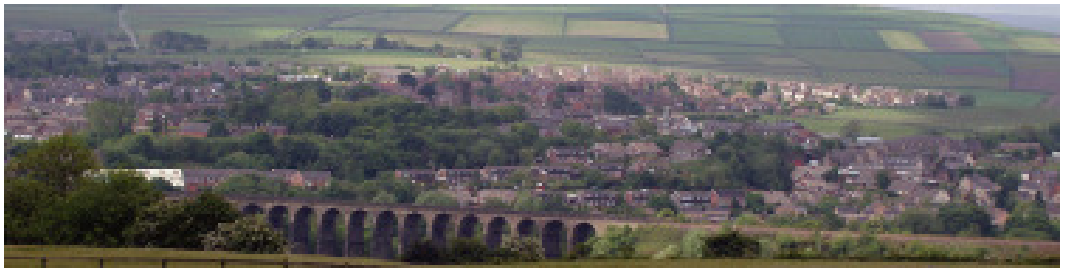


e


f



Penistone UDP


g

Context: Around the site

The site is an island surrounded by agricultural land (pasture and crop) on two sides with Mortimer Road and Oxspring road fronting the other two. It is approximately half a mile to the outskirts of Cubley (d). The land gradually climbs from North to South. Directly adjacent the site is land that was also associated with the quarry now containing a number of farm buildings (a), across from the current entrance on Mortimer/ Oxspring Road is a stone built bungalow (b) dating back to around 1990. Further along Mortimer Road is the old waterworks building (c) now converted and extended into residential use.



a



b



c



d



Context: The site

The site along with an area of land on the opposite side of Mortimer Road was quarried for sandstone until around the turn of the century; since which the site has not been used and has become overgrown with goarse, brambles and grass, the original quarry pits and spoil mounds are still visible. The main quarry now being filled with water and forming a picturesque lake.

The overall site measures approximately 12 hectares, is bordered on two sides by dry stone wall, the others by wire fencing, the entrance to the site is currently on the corner of Mortimer Road and Oxspring Road where a dirt track leads down to the main water filled quarry to the south. Trees dominate the western side of the site and the remainder is rough vegetation growing on and around the spoil mound from the original quarrying, there is a second shallower quarried area to the East.

An ecological stage one survey has taken place, this highlighted redundant badger sets to the south east corner, and the need for further surveys for bats, and newts prior to any construction work. The rough vegetation has little ecological value.

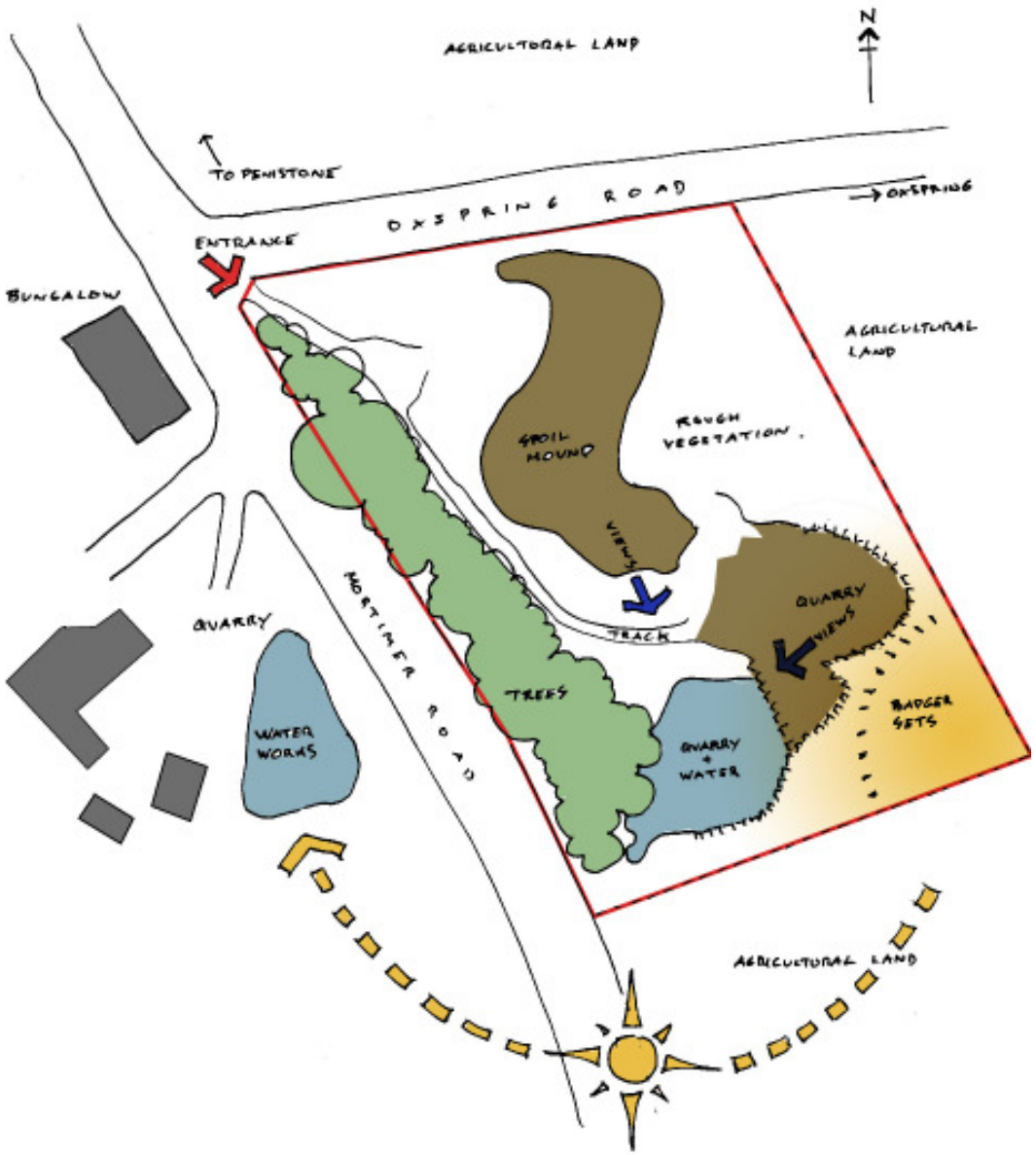
The central area of the site is very secluded with no views in from either of the adjoining roads.

The site is not overlooked by any properties.

The site has often been used as a dumping ground for stolen cars, it is used in the summer months by youths, that go to drink, swim and dive in the water filled quarry and often light bonfires, all of which are a danger to the kids themselves and the ecology of the site.

The site has no agricultural value, as the land is too uneven and the soil would not support crops or pasture.

The site has one previous planning refusal by a previous owner for a basic bunglaow of no architectural merit.



Site analysis



Panorama of the site

Context: Planning policy

The site is within the green belt.

Relevant Extracts from Planning Policy Statement 7: Sustainable Development in Rural Areas

New building development in the open countryside away from existing settlements, or outside areas allocated for development in development plans, should be strictly controlled; the Government's overall aim is **to protect the countryside for the sake of its intrinsic character and beauty,** the diversity of its landscapes, heritage and wildlife, the wealth of its natural resources and so it may be enjoyed by all.

All development in rural areas should be well designed and inclusive, in keeping and scale with its location, and **sensitive to the character of the countryside** and local distinctiveness.

Isolated new houses in the countryside will require special justification for planning permission to be granted. Where the special justification for an isolated new house relates to the essential need for a worker to live permanently at or near their place of work in the countryside, planning authorities should follow the advice in **Annex A** to this PPS.

Very occasionally the exceptional quality and innovative nature of the design of a proposed, isolated new house may provide this special justification for granting planning permission. **Such a design should be truly outstanding and ground-breaking**, for example, **in its use of materials, methods of construction or its contribution to protecting and enhancing the environment, so helping to raise standards of design more generally in rural areas**. The value of such a building will be found in its reflection of the highest standards in contemporary architecture, **the significant enhancement of its immediate setting** and its sensitivity to the defining characteristics of the local area.

Planning authorities should take a positive approach to innovative, high-quality contemporary designs that are sensitive to their immediate setting and help to make country towns and villages better places for people to live and work.

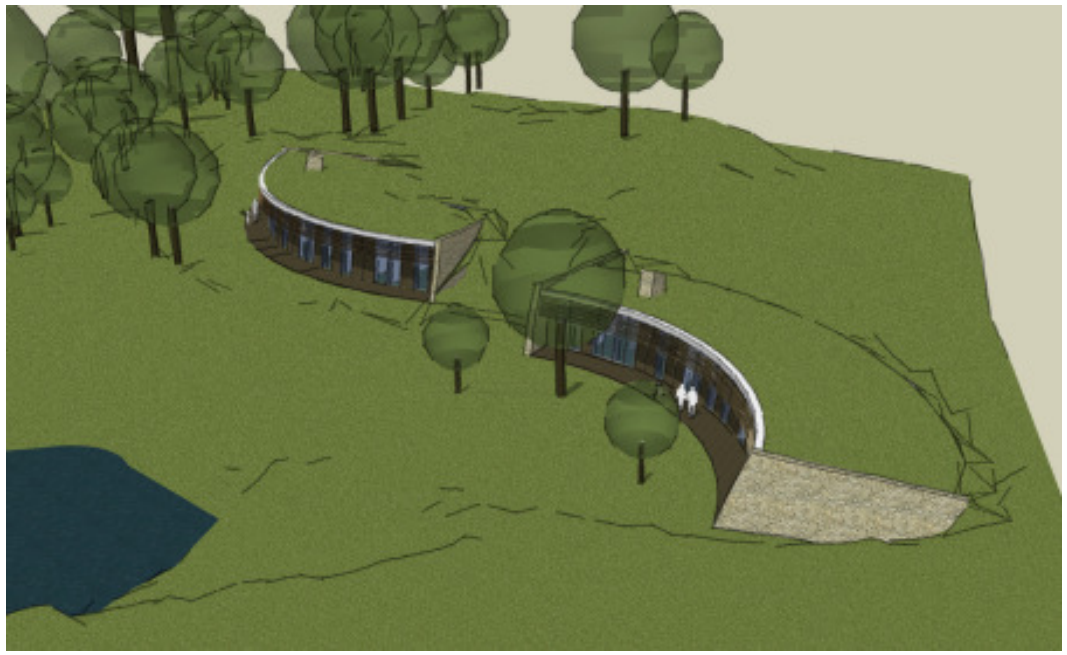
Context: Consultation

A meeting took place between designSpace architects and Mr Matthew Smith senior planner of Barnsley planning department, the scheme opposite was presented. Mr Smith along with his colleague Laura Bibby (who visited the site) although acknowledging the quality and originality of the design and the unique isolated setting, stated that they would not support the application as there are already two earth sheltered homes approved in the district. The architect made the point that this development was very different to the two previously approved (but unbuilt) earth sheltered homes. The planning officers suggested that the proposal should be submitted and the planning committee would have the final decision.

Consultation took place with tree preservation officer Marcus Pinker who had no objections to removal of trees as detailed on the technical drawings; a full tree survey forms part of the submission.

A stage 1 ecology survey has been included (see separate report) this confirms that the proposed development will have no detrimental impact on the ecology of the area and in fact there is potential to improve the ecology through the green roof, further planting and good management of the site in general. Further ecological studies will be required prior to construction and some mitigation measures may have to be put in place during construction.





Design: Use

Two dwellings are proposed for the site, this will be the permanent residence of brothers Gregg and Dave Walters and their families, who currently live and work in Penistone.

They have begun a program of cleaning the site, having removed abandoned cars and rubbish from in and around the quarry and have begun to encourage and protect the wildlife on the site. If the proposal is built they will more readily be able to manage, encourage and protect the natural wildlife, flora and fauna of the site

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Design: Amount

The proposal is for two, three bedroom dwellings of approximately 200sqm each. They are single storey dwellings, this is dictated by the land levels and contours.

The buildings utilise a very small proportion of the entire site and an area of the site primarily compacted dirt and gravel and some rough vegetation (as shown opposite); a few trees and shrubs of no ecological merit will be disturbed by the development. The proposed quantity of the buildings can be easily accommodated on the site without harm to the ecology.

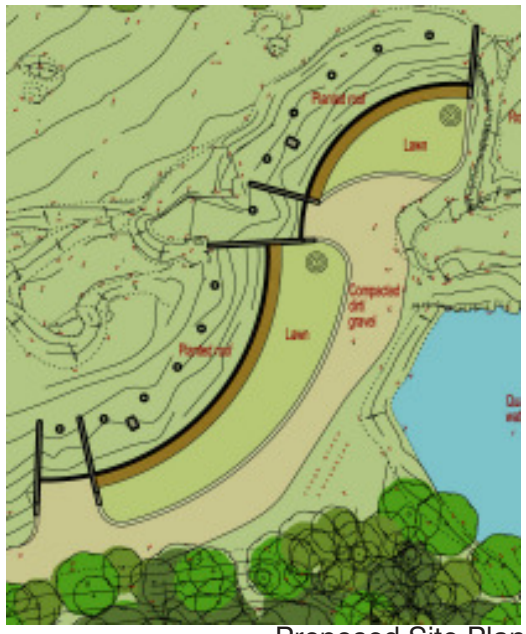
Two houses afford security to each other through natural surveillance in line with ‘secured by design’ principles.

Two houses create a more sustainable development in terms of bringing utilities onto the site; energy generation, water recycling, transport can all be shared.

The amount can be accommodated without being seen from outside the site, the area allows for a long strip of south facing elevation to maximise light and heat gains and also maximises views of the lake.



Existing Site Plan



Proposed Site Plan



The location of house 1



The location of house 2

Design: Layout

The homes follow the contours of the land, dwelling two is sat in the basin created by quarried stone, dwelling one is cut into the banking of the quarry spoil mound, both have their glazed elevations facing south to capture the solar gains and views out to the lake. The buildings appear joined and as one sweeping around the hillside, both are based on a radial grid, one concave the other convex. The structure is a timber post and beam system, with the beam sitting on the curved retaining wall at the rear. A decked area runs the full length of the elevations, beyond this is an area of garden and lawn enclosed by a dwarf stone wall following the sweep of the buildings; providing valuable south facing amenity space.



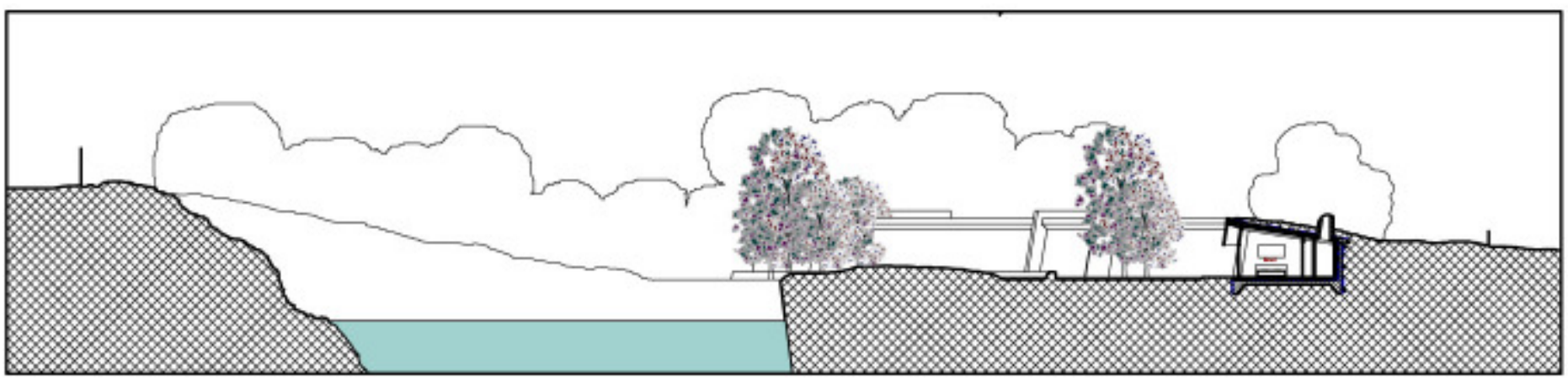
Floor Plans

Design: Scale

The scale is very low key, the buildings designed to be unnoticeable until you are in the centre of the site, their height is dictated by the levels of the land into which they are cut.



The proposal will not be seen



Section showing the building cut into the landscape

Design: Appearence



Design: Appearence

The building will gradually reveal itself as you approach, coiling around the landscape. From across the water filled quarry you will get the full view of the development, merely a slither of glazing and cedar, broken occasionally with dry stone walls.

A low impact, subtle, yet ground breaking development, a 21st century building, bringing the only other example of earth sheltering in the area (Underhill at Huddersfield) up to date, it has much in common with Future Systems example of earth sheltering in Devon but unlike that example it usestimber and stone to cleverly connect it to the Yorkshire landscape.

Natural materials are used throughout:

Sandstone dug up from the excavations will be used in a ‘dry stone wall’ manner to form the raked cross walls that divide up the development.

Responsibly sourced glulam timber, post and beam construction forms the superstructure.

The roof will be an extensive green roof, local grasses and plants will be chosen to seamlessly blend in to the landscape.

Untreated cedar cladding forms the full height panels and the garage doors; these will be allowed to weather down to their natural silver colour and sit comfortably amongst the trees.

Cedar louvres run around the full length of the buildings protecting them from excess summer sun, these will be ineterspersed with panels for solar water heating and electrcity generation. Below the louvres sits the timber decking, protected partially from the weather by the large metal clad overhang, allowing autumn evenings to be enjoyed outside.

Glazing with Accora (sustainable timber) window frames require no further treatment, they are sustainably sourced and will last a lifetime. Multiple glazed doors offer easy access to outside.

Small glazed domes with metalclad sides and the stone feature chimneys pop up above the green roof, hinting at something special hidden below.



Proposal and gardens



View from across the quarry



Future Systems



Underhill

Design: Landscaping

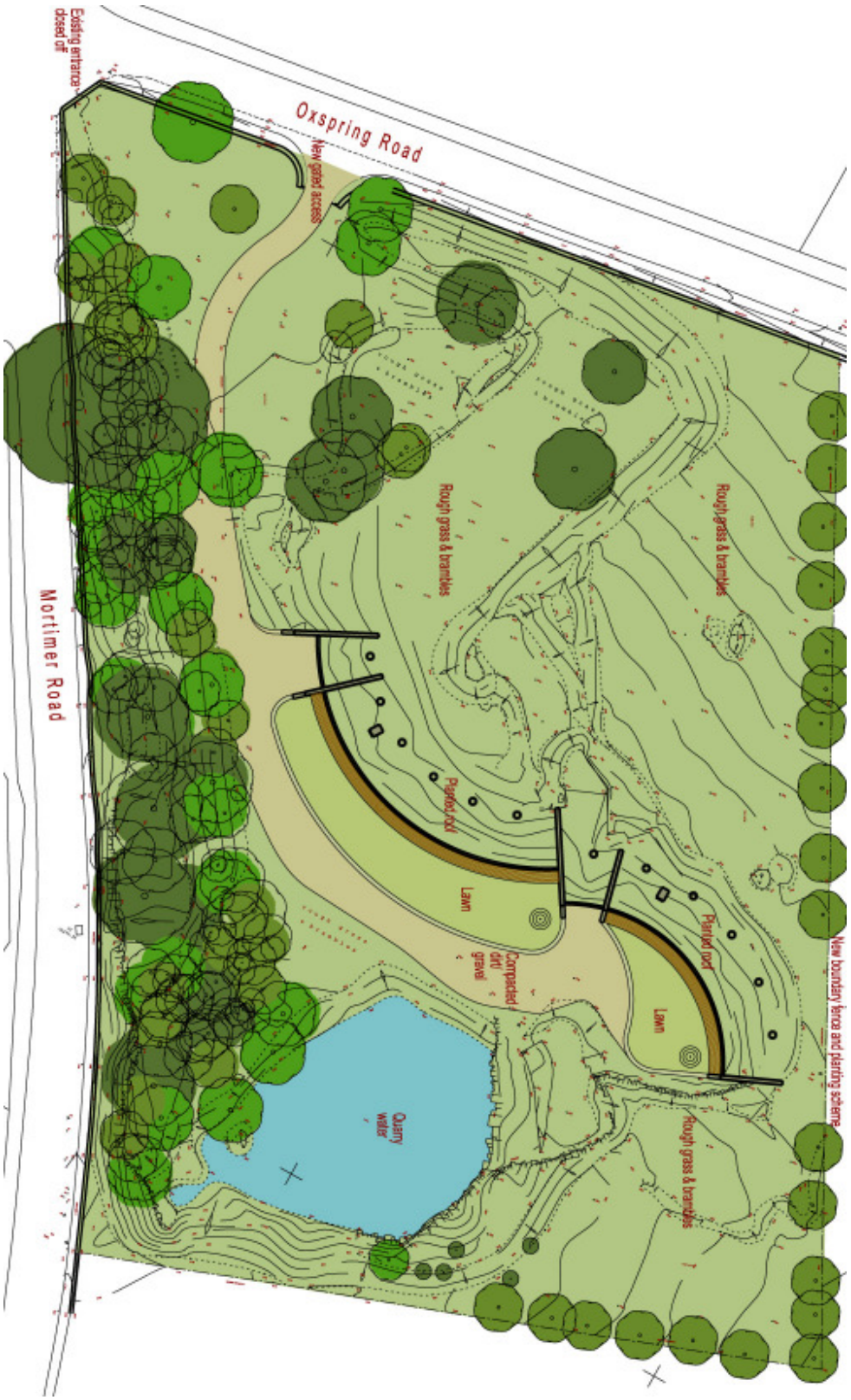
A new access will be formed a safe distance from the junction, vehicles will have space to pull off the road before passing through the automatic gates the dry stone walls will be extended up to the new gates. The new access will connect to the existing gravel track, besides minor repairs this will remain as exisitng.

A dwarf dry stone wall will curve around in front of the developments creating an area of amenity space for each house with lawned area and small gardens, a decked terrace runs the full length of the elevations.

A number of trees have been removed to allow the development; these were young trees of no merit as agreed with the council's tree officer. A number of new trees and shrubs will be planted around the perimeter of the site, the numbers will exceed those removed (see tree report).

The roof will be an extensive green roof with grasses and plants to allow it to subtly blend in with the surrounding vegetation.

The remainder and great majority of the site will be carefully managed by the owners, the natural wildlife, flora and fauna of the site will be encouraged and protected.



Landscape Plan

Design: Sustainability

The house will look to achieve code for sustainable homes level 6, a true zero carbon home and the first of its kind in the area. The building will do this with:

Orientated with glazing to the south, louvres will obstruct high summer sun but allow the low winter sun through giving beneficial heat gains.

A super insulated fabric, using sustainable insulation such as sheep's wool.

Natural stack effect ventilation will occur through the domed light wells to keep the building cool in the summer

Timber structure and cladding from sustainably managed sources.

Extensive planted roof gives an environment for ecology to prosper, reduces rainwater run off, increases insulation values and has low maintenance.

Earth sheltering of the cold northern wall means the building will benefit from the near constant ground temperature throughout the year, meaning the internal temperature remains more constant and so requires less hea t input and less cooling

Electric vehicle charge point to encourage green transport.

Photovoltaic panels generating the electricity to power the heat pump, ventilation and electric car charge point.

High thermal mass creates constant internal temperature

Heat recovery ventilation system will create an air tight building.

Providing the relatively small amount of extra heat the super insulated fabric will require, is a water source heat pump from the quarry water.

A+ rated and water saving appliances will reduce demand.

Grey water recycling system will reduce the potable water required.

All external landscaping surfaces will be porous the green roof significantly reduces rainwater run off, any remaining surface water will be directed into a soakaway.



Green Roof



Heat Pump



Solar Water Heating



Photovoltaics

Access:

A new highway access on Oxspring Road will be formed, some 30m from the junction to improve visibility; the current excess on the junction will be closed and walled off.

Attempts will be made to encourage green transport plans. An electric car charge point will be provided in each garage, the owners will also facilitate a car sharing system.

Emergency services can gain access to the property from Oxspring Road.

Refuse and recycling will be left at the gated entrance on Oxspring Road fortnightly. The building will be designed to facilitate a high level of recycling in line with code for sustainable homes level 6.

Two means of escape are provided from all habitable rooms, safe distance from the building in the event of fire can be achieved.

Pedestrian access to the entrance from the parking area will be level with level thresholds into the building; The main living space and an accessible WC is provided at ground floor level, corridors and doorways will meet part M of the building regulations.

The building is intended to be fully adaptable to meet the changing needs of the occupants.

A small sewerage treatment plant will deal with the on site sewerage.

Grey water will be recycled to flush toilets.

All surfaces will be porous, but any remaining surface water will be directed into a soakaway.

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Appendix: designSpace portfolio

Andrew Brown is the founder of designSpace and was born and educated in Penistone. designSpace are specialists in one off sustainable, contemporary homes; established for two years their first completed building won the Home Building & Renovating competition for best do it yourself project.



Highfield, Sheffield

The first sedum roof and environmentally aware building in the area, with a striking form on a hilltop location overlooking the market town and conservation area.



Two storey extension to an existing bungalow, Sheffield

On the edge of the river Don Valley, in the Thurlstone conservation area, particularly noted for its weavers cottages. A wooded riverside setting is reflected in the tree house balconies and leaf coloured render, a contemporary solution that was praised by the local planning authority.



Broad Close Farm, Sheffield

A second agricultural dwelling in the green belt, received high praise from the planners for the contextual solution and high quality of the design.

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Notes.
All illustrations in this document are indicative only and should not be used for detailed consideration of massing or heights in relation to other buildings, please consult the technical drawings in this regard.