

The green one



Contemporary elevations



Bore holes in progress



Sewage treatment plant

Client: Private Client

Programme: 6 months design and infrastructure

Project management services provided:

Health & safety compliance – CDM – Appraisal – design – planning – building regulations – building site management – sewage treatment design – water boreholes – ground source heat pumps

Hill Project Management were tasked with the detailed design of this very 'green' new build.

Set in beautiful countryside, this look-alike barn conversion was taken by the HPM team, from planning sketches to a fully developed design.

The appearance of the building is very attractive with extensive glazing and timber cladding. This contrasting against a fairface blockwork plinth to maintain an 'agricultural' appearance.

Large windows were deliberately aspected to face the open countryside and woods beyond.

Internally, the design was for modern open plan living. This featured a lowered corner area, forming and defining a snug next to the modern woodburner, with the kitchen and dining areas surrounding it.

Highly insulated and airtight, the incorporation of mechanical ventilation with heat recovery ensured a healthy environment inside, with continuous fresh incoming air, preheated by the out going stale air.

The location, whilst bringing benefits also had downsides – no mains water or sewer services.

The options to overcome this were considered and costed, to help the Client decide on the best route forward.

Solving this issue required the design and delivery of a broad spectrum of complex infrastructure, to enable this location to cater for a modern home.

Client driven, green energy solutions were explored and designed, with HPM then arranging installation.

Sewerage was dealt with by the construction of a package treatment plant to 'digest' the waste and enable the treated effluent liquid to be safely discharged to a stream, with requisite consents in place.

Water was to be sourced from a borehole, drilled to 70 meters deep, the ground water was pumped up to a treatment room, where it could be rendered safe to drink and serve the entire house. A complex process in itself. Requiring reverse osmosis desalination and UV treatment.

The water demand was also managed by the incorporation of a rainwater harvesting scheme. This stored roof rainwater run off in a large underground tank.

Heating was designed to be provided by a ground source heat pump. The careful design of which lead to determining the requirement for two 60 meter deep bore holes to warm the embedded pipe loops. These circulated fluid into the heat pump, housed in the plant room. The Client was advised about the various Government grants and incentives for projects such as this.

Whilst this new build may have a rustic charm to its external appearance, this truly belies the hi tech approach to the house internally. A real 21st century home – fit for the future.