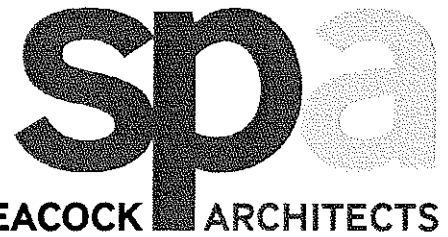


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SUNDERLAND PEACOCK ARCHITECTS

RESUBMISSION OF APPLICATION 3/2011/0140

DESIGN AND ACCESS STATEMENT INCORPORATING
AMENDMENTS TO PROPOSED TIMBER SANITARY
ACCOMMODATION BUILDING TO FORM NEW GILL
CAMPSITE



DATE: 11 July 2011

Location

The building has been relocated out of the valley and into the adjacent field to the east. The building is now approximately 80metres away from the biological heritage site and is sited on undulating lowland farm land which is currently used for grazing. The repositioning of the building into the field has resulted in a reduction of floor area from 75m² to 67m² as access is now available to all sides of the building. The revised building also offers improved disabled access.



View North East Indicating Existing Farm Building to Far Right and Proposed Location of Sanitary Building to Far Left

It is proposed to continue sheep grazing on the proposed camping area to maintain the condition of the grass. The photo below shows the position of the existing farm building to the rear and the proposed camping area in the foreground. As recommended by the LCC Ecologist, the siting of the proposed development and camping area away from the biological heritage site will avoid impacts on Bond Beck Pastures in the valley below.



View East Showing Proposed Camping Area

Planting

It is proposed to introduce planting adjacent to the building along the existing fence lines / field boundary to provide visual screening. The planting is to be a native hedge mix to the recommendations of Lancashire County Council Ecologist and will be permitted to grow tall, wide and dense. This will be introduced in the first available planting season.



View South Along Fence Line Directly Adjacent to Proposal
New Native Hedgerow to be introduced along Fence Line

Parking

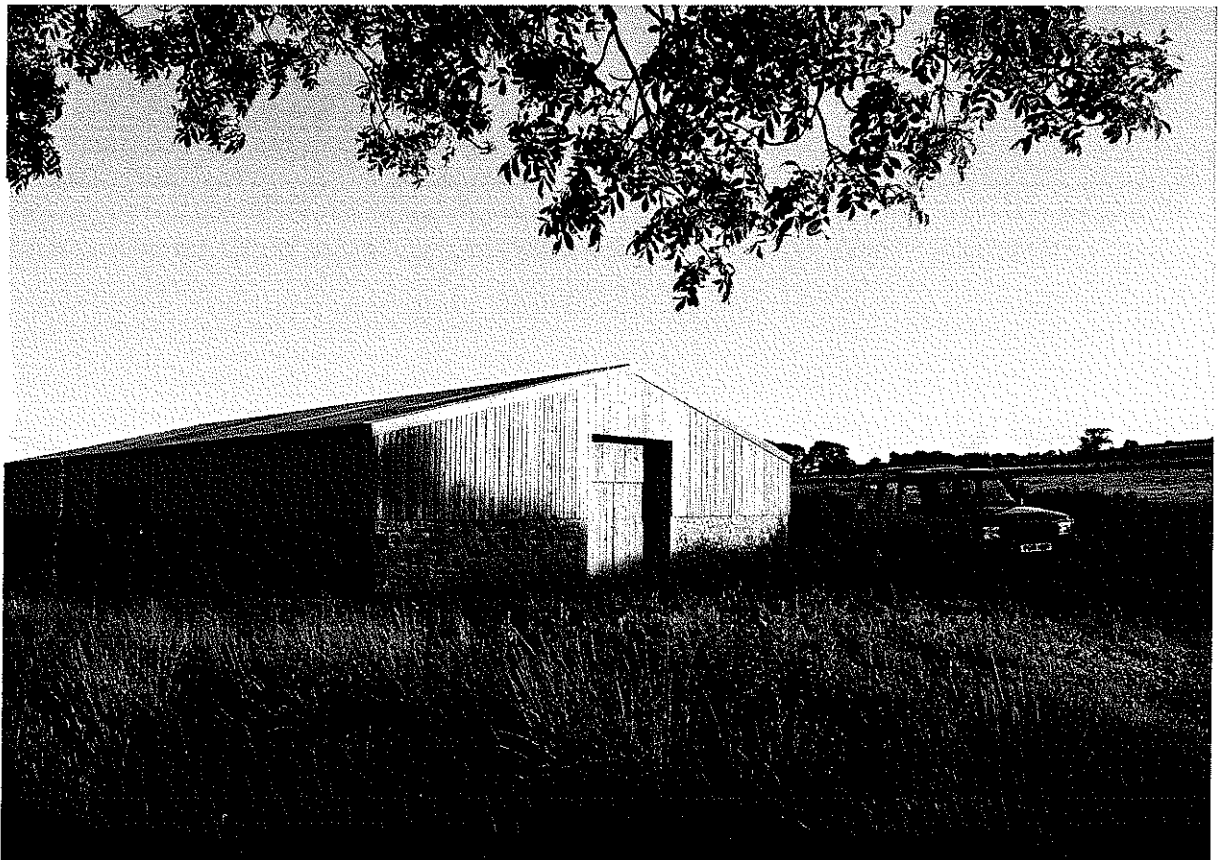
In accordance with recommendations from Lancashire County Council Senior Landscape Architect, LCC Ecologist, and LCC Highways Officer vehicle parking provisions have now been introduced outside the existing farm building for 10no. vehicles, adjacent to the main access lane. No vehicles will require to be taken across the farm track through the fields. The designated camping area and sanitary building is 100metres away from the parking area and will be reached on foot.

The main unmetalled access track serving Brackenhurst Farm dwelling and current agricultural vehicles will be regularly maintained up to the parking area with grade 1 MOT to allow safe access to cars, motorcycles, cycles and pedestrians. As recommended by LCC Highways Officer, passing places are to be introduced to this lane to allow the safe and convenient passing of vehicles to and from the proposed parking area at positions agreed.

As the proposed camping site is only envisaged to be on a small scale with an estimated maximum of 10 cars on peak holidays, the traffic movements to and from the site will be not significant enough to cause congestion on the lane, especially with the introduction of passing places. At present there are three holiday lets served by the lane; one full time dwelling and agricultural access to the fields.

Materials

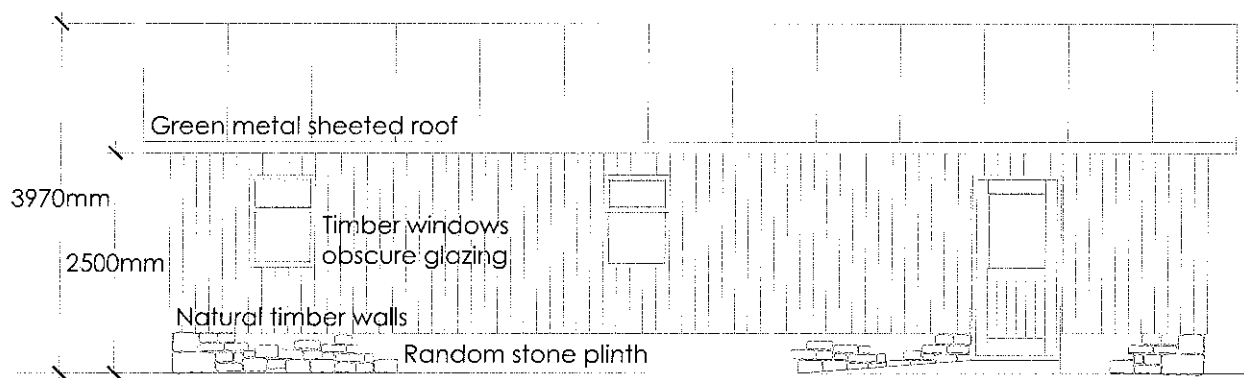
The proposal is to be a single storey framed structure with a natural stone plinth and natural unstained vertical timber cladding to the walls externally. The low pitched roof will keep the overall height of the building at a minimum and is to be clad with green profiled metal sheets to the roof. A colour sample would be agreed with the Planning Officer. The south elevation roof is to have photo voltaic and solar thermal panels affixed to serve the proposal.



Existing Adjacent Farm Building Constructed of Same Materials as
Proposed Sanitary Building

Security

The camping ground is proposed to be permanently open for visitors and will have the facilities cleaned and checked daily. At weekends and holiday periods a morning and evening check of the site and facilities will be carried out. Due to the rural location of the proposed building and a daily presence at the site, it is anticipated that security will not be an issue. The existing adjacent farm building has been in place for 10 years without an issue. As the proposal is out of site of the main road, it is anticipated that the majority of visitors will hear about the site through advertising in tourist brochures, through a website etc. Prior booking will be encouraged to give a good indication of when busier periods would be and when new arrivals are expected.



Proposed North Elevation

Sustainability

The proposed building is to operate off the national grid, not requiring a mains electric connection and being zero carbon through its annual emissions will have a low environmental impact. Electricity for low energy lighting will be generated from roof mounted photo voltaic panels. Solar thermal panels and a biomass boiler as backup will provide the hot water for washing.

The Biorock sewage treatment system requires no electricity to operate and is sited adjacent to the farm building for ease of access for maintenance.

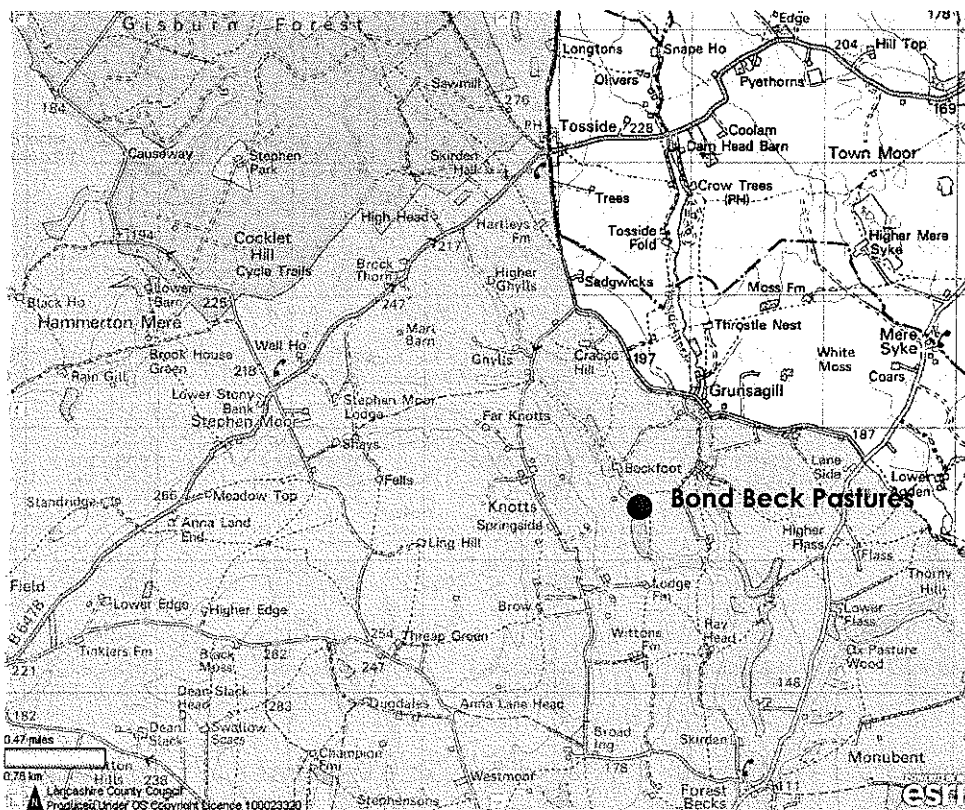
THE FOLLOWING SUPERSEDED DESIGN AND ACCESS
STATEMENT IS INCLUDED FOR INFORMATION PURPOSES
ONLY AND HAS NOT BEEN AMENDED TO REFLECT THE
AMENDMENTS LISTED ABOVE

DATE: 22 February 2011

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1. Introduction

Bond Beck Pasturelands contribute part of a farmstead covering approximately 200 acres, situated on the western periphery of the Ribble Valley. The farm land contributes as part of the Forest of Bowland Area of Outstanding Natural Beauty. The proposal is to construct an earth covered sanitary building within the valley that blends in to the rural landscape on unutilised farmland. This will permit low key short term sustainable tent-only camping; allowing tourists to reside directly in the area without any visual detriment for other visitors.



Forest of Bowland Area of Outstanding Natural Beauty Shaded

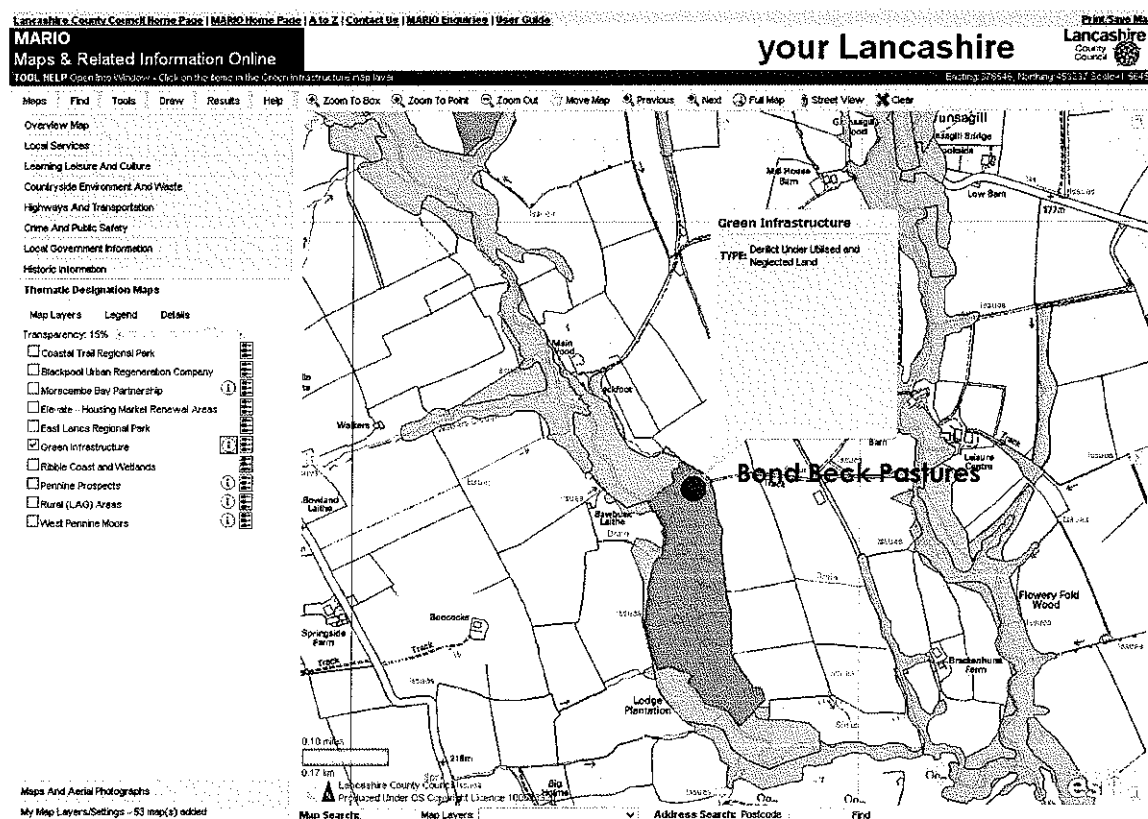
2. Location

The farm land around Bond Beck Pastures is located within the Parish of Bolton by Bowland. It is sited 1.5 miles from the Village of Tosside, a community Village which straddles the borders of Lancashire and North Yorkshire. Uniquely the farmland is situated within the Forest of Bowland yet is only 5.5 miles by road from the Yorkshire Dales National Park.

3. Land Type

The farmland around Bond Beck pastures is identified as undulating lowland farming land with varied terrain. There are several meadows of fair condition for grazing stock above the valley of Bond Beck pastures.

The land forming Bond Beck pastures on the proposed site has been identified as "derelict, under utilised and neglected land". This area can be seen shaded in dark green on the map below. The proposed development location is indicated red.



The majority of this area is unsuitable for grazing of stock with areas of steep valley slopes to the beck, scattered woodland, bracken cover and non prolific grasses. The Department for Environment Food and Rural Affairs encourages diversification of such areas to reduce farm dependency on subsidies.

"Farm diversification can reduce your dependence on conventional agricultural production and can make better use of your farm's physical resources. Diversification can also help integrate farm businesses into the wider rural economy, bringing cash into the area, creating employment and stimulating spin-off business opportunities." From DEFRA Farm Diversification 2008

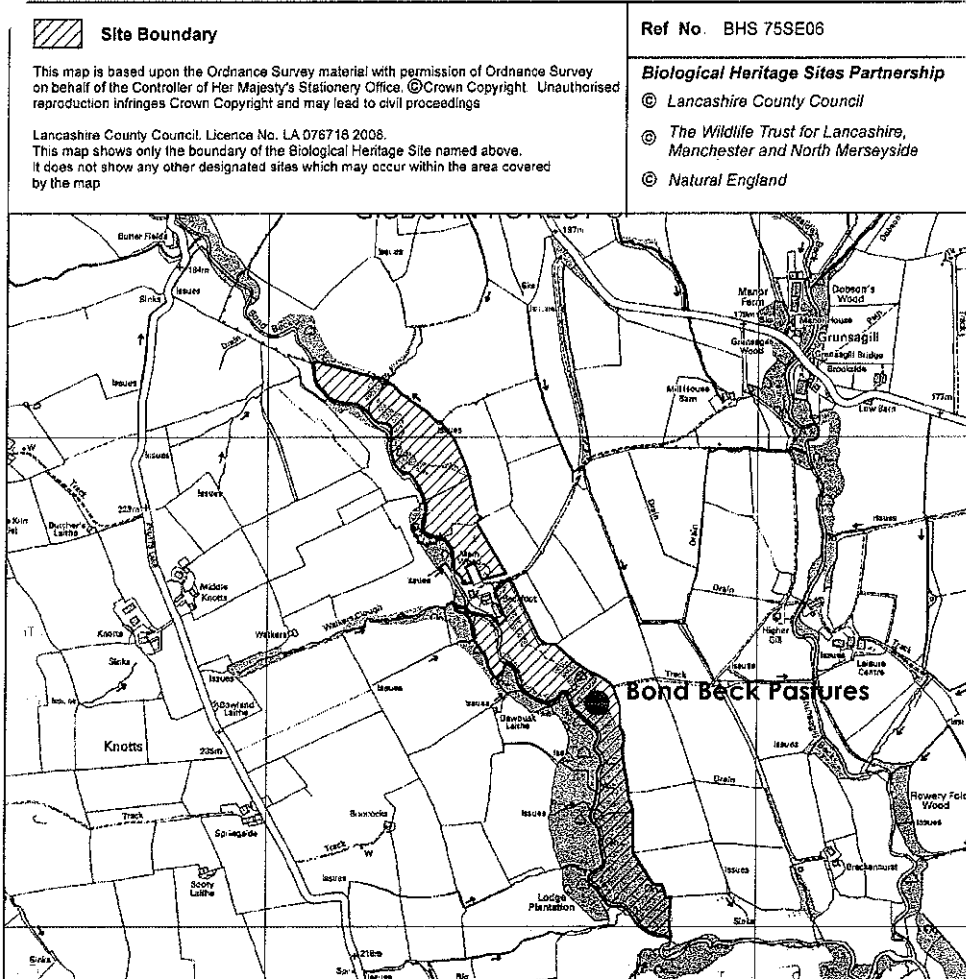
4. Biological Heritage Status

Due to the lack of grazing on the land directly within the valley and its rural setting, this area (shown on map below) was identified in September 1993 as a Biological Heritage Site (BHS) by Ecologist Margaret Evans. A BHS is the name given to the most important non-statutory wildlife sites in Lancashire.

"BHSs contain valuable habitats such as ancient woodland, species-rich grassland and bogs. Many provide a refuge for rare and threatened plants and animals. Biological Heritage Sites form an irreplaceable part of our environment and are a major part of the strategy to conserve the biological richness of Lancashire" Lancashire County Council Environment & Ecology

Lancashire County Heritage Sites Biological Heritage Site

BOND BECK PASTURES



Extent of Biological Heritage Site

5. Siting Within the Land

A full accompanying report was produced at the time of being selected for BHS status (see appendices) identifying the species of protected plants present and advice on management of the land to maintain and enhance its ecology. One key suggestion for the enhancement of the BHS is "*bracken and scrub control to prevent any further encroachment*". The siting of the sanitary building has been chosen in an area dominated by bracken cover and it will therefore be beneficial to the Biological Heritage Site to have this bracken removed.



Proposed Building to be Sunken into Hillside Where Bracken has a Stronghold Furthermore this site will be invisible from the approach to the proposed camping area as it is within the depths of valley, below the level of the surrounding fields. A south west aspect to the front elevation will flood the inside of the building with natural light, reducing the electricity demand from artificial lighting. The shelter provided by the valley will protect the building and designated camping area in front of the building from the brunt of foul weather.

6. Tourism

There are many attractions in the area drawing in tourists. Bond Beck Pastures form part of the Forest of Bowland Area of Outstanding Natural Beauty and is situated just 5.5 miles by road from the Yorkshire Dales National Park. With its status as a Biological Heritage Site, Bond Beck Pasture lands are the perfect location to see protected species of flora and fauna. The woodlands are home to woodcock, woodpecker, birds of prey, Sika deer, badgers and many more; in addition to protected plant life. Many of the woodland animals tend to be easier to see at dawn or dusk, requiring early starts or late nights for enthusiasts to see these animals in their natural habitat. The provision for camping overnight allows for their enjoyment within walking distance from the accommodation and even directly from the site.

There is a myriad of local footpaths through Gisburn Forest and around Stocks Reservoir including Lancashire County Councils identified FP3 which runs through Bond Beck Pastures following the beck downstream to Bolton by Bowland.

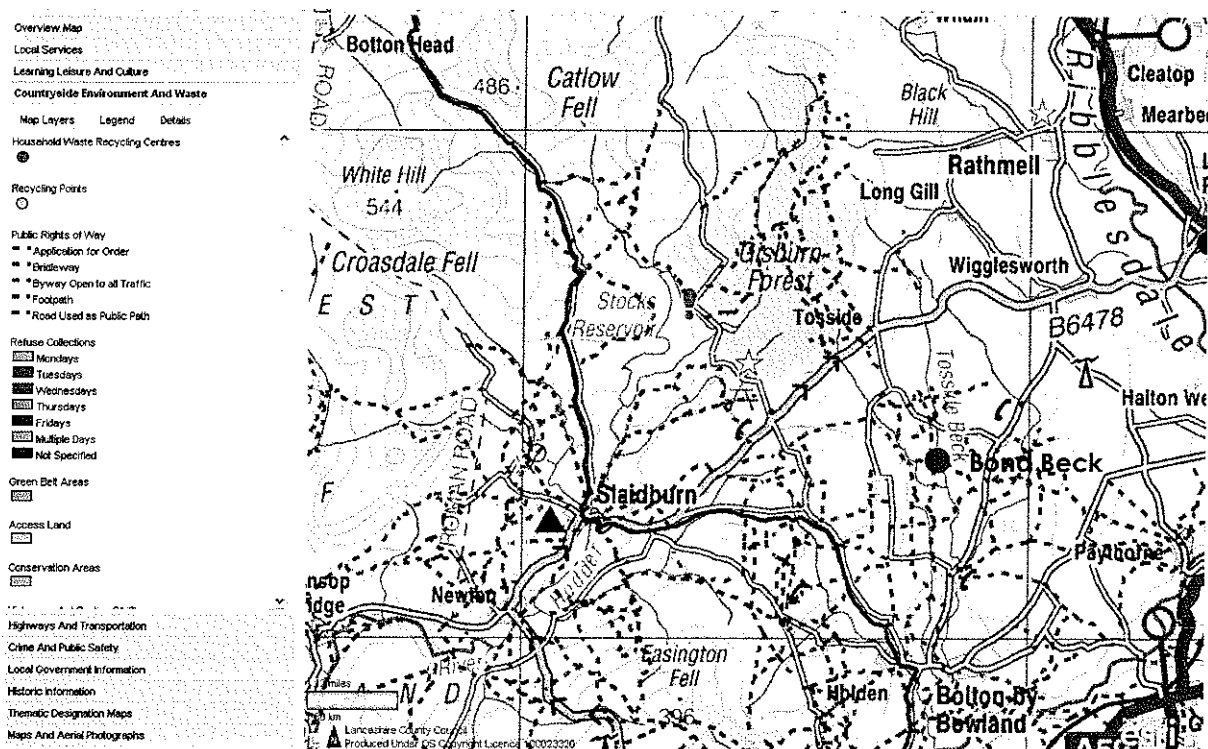


View down the valley to Bond Beck

6. Tourism continued

Several road cycling routes pass close to the site including the Way of the Roses coast to coast cycle route and the famous Lands End to John O' Groats route; however the choice of surrounding accommodation is very limited.

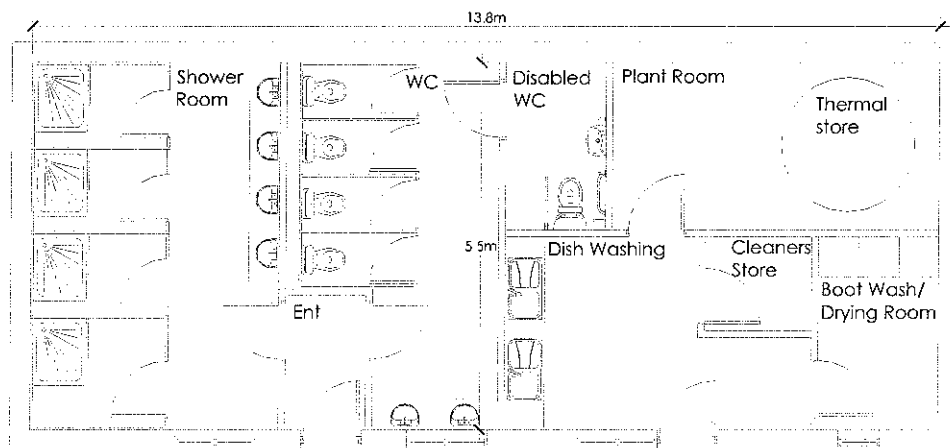
Mountain biking in the area has always been popular but with the recent improvements of the mountain bike tracks at Gisburn Forest, just 2 miles from Bond Beck Pastures, there has been an influx of visitors to the area with many wishing to stay for several days to fully explore the area and trails. The trail development started in 2009 and is still ongoing with funding and publicity from the Forestry Commission. Several articles have been published in national mountain bike magazines and Gisburn Forest is becoming one of England's top cycling hotspots.



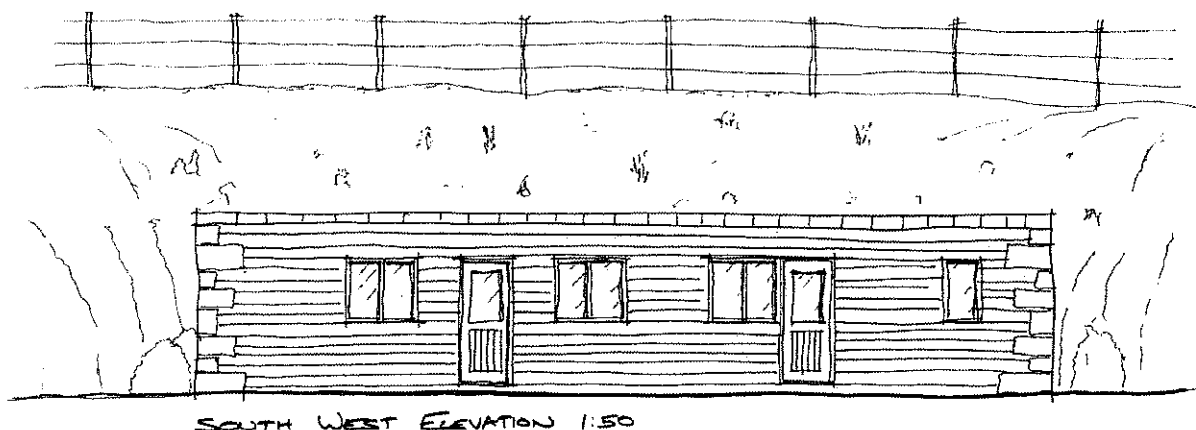
Map Showing the Recognised Public Rights of Way

7. Design

The utmost important objective for this building is to have minimal impact on its surroundings, both aesthetically and environmentally. This concept has shaped the proposal to suit these requirements. Functionally, the building needs to house showering and sanitary facilities to permit camping in this area. The provision of hot water and cold potable water requires a plant room. A small catering washing area has also been incorporated inside the building, along side a small boot / clothes drying area. The building is approximately 14m wide x 6m deep x 2.8m high.



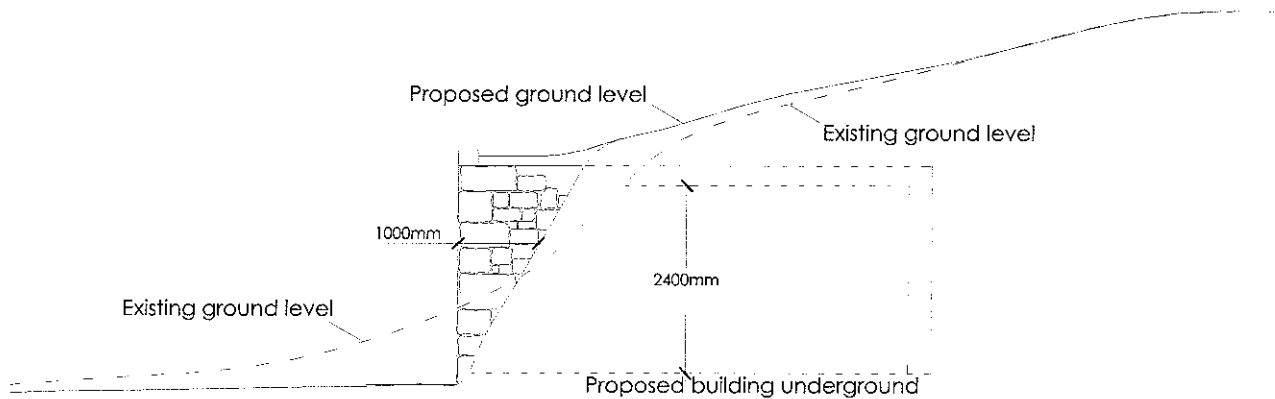
To create the lowest possible visual impact on the area the building has been set into the ground. A sole front elevation stands out of the hillside, with local reclaimed natural sandstone quoins forming the junction with the land. It is proposed to clad the front elevation in unstained timber; which with a natural silvered patina should camouflage the building with the surrounding woodland and grasses. Unstained timber windows and doors are to be used.



SOUTH WEST ELEVATION 1:50

7. Design continued

Natural stone timber cheeks to the side elevations will return into the hillside and with the weathered hue of reclaimed sandstone, sit well with the surrounding organic colours of the valley. See South East Elevation below.



The green roof is to be covered with the topsoil from the excavations and blend seamlessly into the crest of the banking. Selected seeds of the native grasses are to be spread to create a roof indistinguishable from the surrounding valley flora.

8. Access

Access to Bond Beck Pastures is from the road connecting Tosside and Bolton by Bowland. A private tarmac lane leads from the public road to Higher Gill Barn, Blue Scar, Brackenhurst, an agricultural building serving the proposed site and is also the main access for a majority of the surrounding fields. The tarmac ends at Higher Gill Barn but a good quality gravel road continues.



Lane Heading Back to Public Road Looking towards Higher Gill Barn

8. Access continued

From this gravel road connects the access road to Bond Beck Pastures. This is an ancient track which has been used for agricultural access for centuries and previously served Far Gill Farmhouse in the valley. The track is clearly marked on ordnance survey maps as an access road. Although partially grassed over, the track is firm hardcore underneath and is repaired only as necessary to keep its visual impact to a minimum. It is passable by most cars and will be kept in this condition to continue the discreet persona of the proposed campsite. Any minor repairs shall be carried out using clean local crushed stone and grass encouraged to grow over any repaired areas with native seed.



Showing Access to Bond Beck and Agricultural Building in the Background
Parking is available in the concrete access to the agricultural building and within the building for vehicles unable to use the access road. Secure cycle storage is also available in this building to visitors.
Level access into the building is provided with a disabled accessible WC shower cubicle.

9. Sustainability

Due to the rural setting and small scale of this building it is proposed to meet the energy demands without the need for a mains electricity connection.

Large windows, a southerly aspect and a shallow depth to the building will allow sufficient natural lighting into the building for the majority of the day. Motion sensitive artificial lighting to the building will be supplied at night time by photovoltaic panels, installed horizontally on the flat roof and linked to a battery bank in the plant room. These panels would barely be visible unless standing on the roof of the building.

Domestic hot water shall be produced on site through use of solar thermal panels installed also on the flat roof of the building and linked to a heavily insulated thermal store in the plant room. With camping being far more popular in the summer months, solar technologies are far more productive at this time and are an ideal energy source. A small back up fossil fuelled generator would be sufficient to heat the thermal store and recharge the batteries for lighting in the event of prolonged periods with short daylight hours. Connecting the waste water from the showers to a heat exchanger would recover a large amount of energy and reduce the demand on solar heating system.

Subject to an abstraction license approval from the Environment Agency, a 500W low head micro hydro generator in the beck would eliminate the need for a back up generator and provide some space heating to the building.

Consideration has also been given for the inclusion of a micro wind turbine in place of a hydro generator. However the location of the site is classified by Lancashire County Council as a highly sensitive landscape to wind generation so use of alternative sustainable technologies would be more sympathetic to the landscape.

Potable water will be sourced via a new bore hole and connected to the proposed sanitary building.

10. Foul Waste

Foul waste from the building will be connected into a new sewage treatment plant such as the BIOROCK system. These full treatment plants function without the need for an electricity supply, yet the treated discharge at the outlet far exceeds the Royal Commission Standard for effluent quality. Biochemical oxygen demand figures of down to 5mg/l can be achieved where the target figure is 20mg/l BOD.

The de-sludge intervals are less frequent than standard treatment systems reducing fuel costs and environmental impact associated with specialist vehicles required for this procedure. See appendices for data sheet on BIOROCK treatment plants.

The treatment system would be sized to accommodate the estimated effluent output and installed to the approval of the Environment Agency and Building Control Approved Document H with the appropriate consent to discharge in place prior to commissioning.

11. Appendices

	Lancashire County Heritage Sites Biological Heritage Site	<i>Biological Heritage Sites Partnership:</i> © Lancashire County Council © Wildlife Trust for Lancashire Natural England
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Site Name: Bond Beck Pastures

Site Ref: 75SE06

Approved: 01 September 1993

Area (ha): 11.79

Date written/last updated: 17 October 2007

Grid Ref: SD774538

Owner/Occupier: Private

Districts:

Ribble Valley

Parishes:

Bolton-by-Bowland

Description:

The site comprises pastureland with scattered trees and shrubs situated on steep valley slopes adjoining Bond Beck. Although the grassland has been improved in some areas where the topography allows, much of it still comprises ancient semi-natural neutral grassland with flushes and supports a rich variety of plants. Species present include common knapweed, lady's mantle, eyebright, devil's-bit-scabious, mouse-ear hawkweed, lousewort, selfheal, autumn hawkbit, betony, common bird's-foot-trefoil, pignut, harebell, bugle, meadowsweet, meadow vetchling, primrose, quaking grass and carnation sedge. Adder's-tongue has also been recorded.

Scattered trees and shrubs including alder, ash, hazel, hawthorn and holly occur alongside the beck as well as on the steep grassy banks and provide additional diversity.

Guideline(s) for Site Selection:

Grassland (Gr3)

Other Information/Comments:

The site forms an integral part of a larger mosaic of semi-natural habitats including grassland with flushes, scrub and woodland situated in the Bond Beck/New Gill Beck Valley. The site is in the Forest of Bowland Area of Outstanding Natural Beauty.

Lancashire County Heritage Sites

Biological Heritage Site

BOND BECK PASTURES



Site Boundary

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This map shows only the boundary of the Biological Heritage Site named above
it does not show any other designated sites which may occur within the area covered
by the map

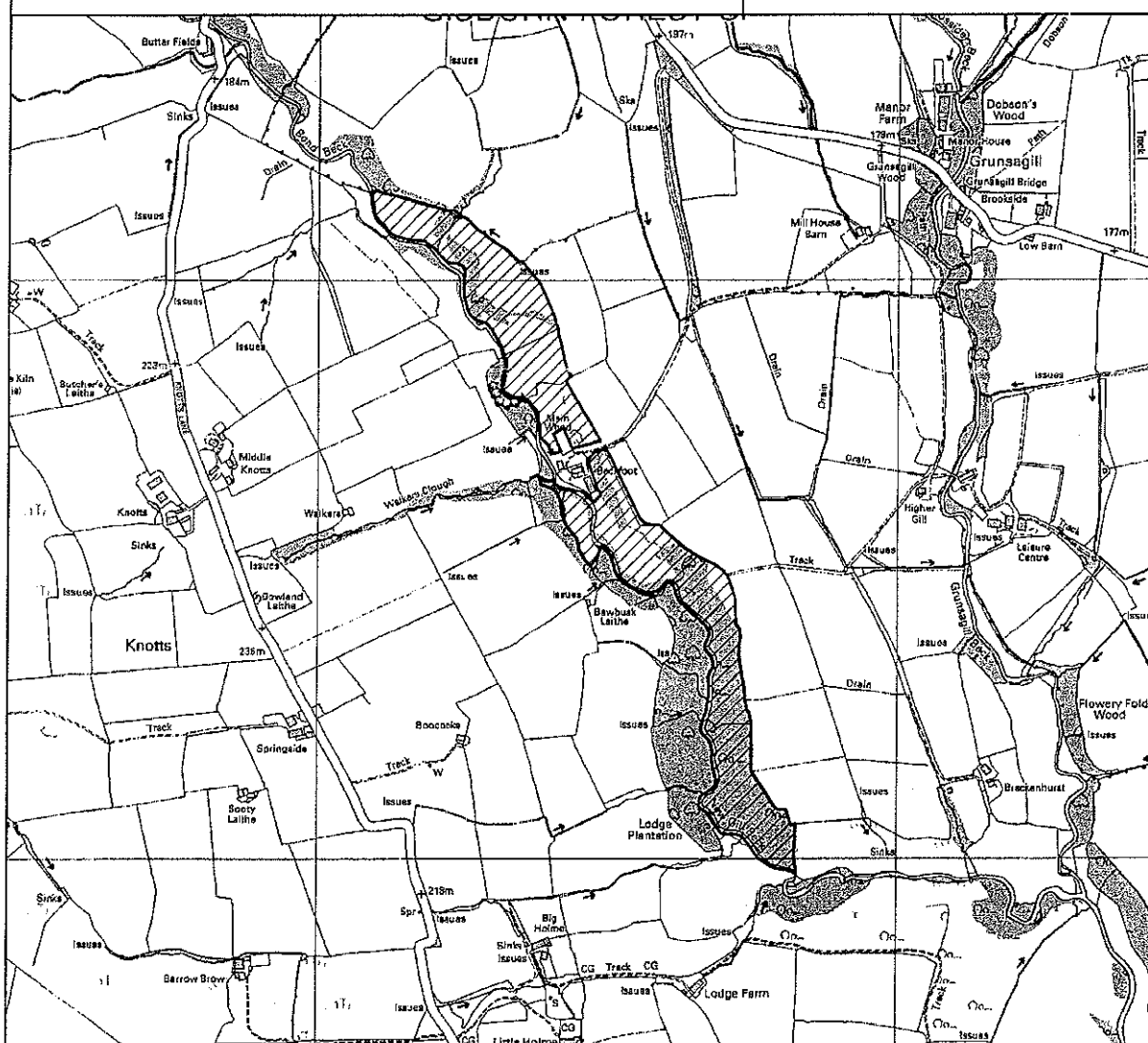
Ref. No. BHS 75SE06

Biological Heritage Sites Partnership

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Manchester and North Merseyside

© Natural England



Grid ref SD 774538

Scale 1:10 000

Site approved 09/93

Map 1 of 1

Boundary revised /

Date of map 02/08



Lancashire
County Council

Lancashire County Heritage Sites Biological Heritage Site			Biological Heritage Sites Partnership: © Lancashire County Council © Lancashire Wildlife Trust English Nature	
Site Name: BOND BECK PASTURES, BOLTON-BY-BOWLAND				
District: Ribble Valley		Map Sheet(s): SD 75SE		Ref: BHS 75SE06
Area (ha): 7.8	Grid Ref: SD 774538	Date Approved: September 1993		Date last revised: July 1998
Site Description: The site comprises pastureland with scattered trees and shrubs situated on steep valley slopes adjoining Bond Beck. Although the grassland has been improved in some areas where the topography allows, much of it still comprises ancient semi-natural neutral grassland with flushes and supports a rich variety of plants. Species present include common knapweed, lady's mantle, eyebright, devil's-bit-scabious, mouse-ear hawkweed, lousewort, selfheal, autumn hawkbit, betony, common bird's-foot-trefoil, pignut, harebell, bugle, meadowsweet, meadow vetchling, primrose, quaking grass and carnation sedge. Adder's-tongue has also been recorded. Scattered trees and shrubs including alder, ash, hazel, hawthorn and holly occur alongside the beck as well as on the steep grassy banks and provide additional diversity.				
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Guideline(s) for Selection:				
Grassland (Gr3)				
Owner/Occupier:				
Private				
Conservation/Planning Status:				
The site is in the Forest of Bowland Area of Outstanding Natural Beauty.				
Other Information/Comments:				
The site forms an integral part of a larger mosaic of semi-natural habitats including grassland with flushes, scrub and woodland situated in the Bond Beck/New Gill Beck Valley.				

**MARTIN HARRISON, LAND AT HIGHER GILL, TOSSIDE
SURVEY OF LAND ADJOINING NEW GILL BECK ON 17/06/04**

New Gill Beck flows through a hidden valley with steep banks supporting a rich semi-natural habitat mosaic of grassland, woodland, scrub and bracken. This valuable wildlife habitat continues to the north and south on adjacent land holdings.

Land East of New Gill Beck

Predominantly open in character with steep banks supporting a mosaic of grassland, bracken, scattered trees and scrub. The grassland comprises a mix of semi-improved acidic and neutral grassland with scattered species-rich flushes. This area meets the grassland guidelines for the selection of Biological Heritage Sites because of the diversity of species present. The following grassland species were recorded:

<i>Achillea millefolium</i>	Yarrow
<i>Achillea ptarmica</i>	Sneezewort
<i>Agrostis capillaris</i>	Common bent
<i>Alchemilla</i> sp.	Lady's-mantle
<i>Anthoxanthum odoratum</i>	Sweet vernal-grass
<i>Briza media</i>	Quaking grass
<i>Carex demissa</i>	Common yellow-sedge
<i>Carex echinata</i>	Star sedge
<i>Carex pallescens</i>	Pale sedge
<i>Carex panicea</i>	Carnation sedge
<i>Carex pulicaris</i>	Flea sedge
<i>Centaurea nigra</i>	Common knapweed
<i>Cerastium fontanum</i>	Common mouse-ear
<i>Cirsium palustre</i>	Marsh thistle
<i>Conopodium major</i>	Pignut
<i>Cynosurus cristatus</i>	Crested dog's-tail
<i>Deschampsia cespitosa</i>	Tufted hair-grass
<i>Euphrasia</i> sp.	Eyebright
<i>Filipendula ulmaria</i>	Meadowsweet
<i>Galium saxatile</i>	Heath bedstraw
<i>Holcus lanatus</i>	Yorkshire fog
<i>Hypochoeris radicata</i>	Cat's-ear
<i>Juncus acutiflorus</i>	Sharp-flowered rush
<i>Juncus effusus</i>	Soft-rush
<i>Lathyrus pratensis</i>	Meadow vetchling
<i>Leontodon hispidus</i>	Rough hawkbit
<i>Lotus corniculatus</i>	Common bird's-foot-trefoil
<i>Lotus uliginosus</i>	Greater bird's-foot-trefoil
<i>Luzula campestris</i>	Field wood-rush
<i>Nardus stricta</i>	Mat-grass
<i>Pedicularis sylvatica</i>	Lousewort
<i>Pilosella officinarum</i>	Mouse-ear hawkweed
<i>Plantago lanceolata</i>	Ribwort plantain
<i>Potentilla erecta</i>	Tormentil

Prunella vulgaris	Selfheal
Ranunculus acris	Meadow buttercup
Ranunculus flammula	Lesser spearwort
Trifolium repens	White clover
Veronica officinalis	Heath speedwell

Bold type denotes Biological Heritage Site Grassland (Gr3) species.

Land West of New Gill Beck

Remnant woodland, scattered trees, scrub and bracken on steep slopes with some damp, species-poor rushy grassland. Species include alder, ash, hazel, hawthorn, holly and sycamore.

New Gill Beck

Alder frequent along banks. Ground flora includes abundant creeping soft-grass, and occasional ramsons, wood-sorrel, dog's mercury, wood-sorrel, primrose, bugle, red campion and opposite-leaved golden-saxifrage.

Management Suggestions

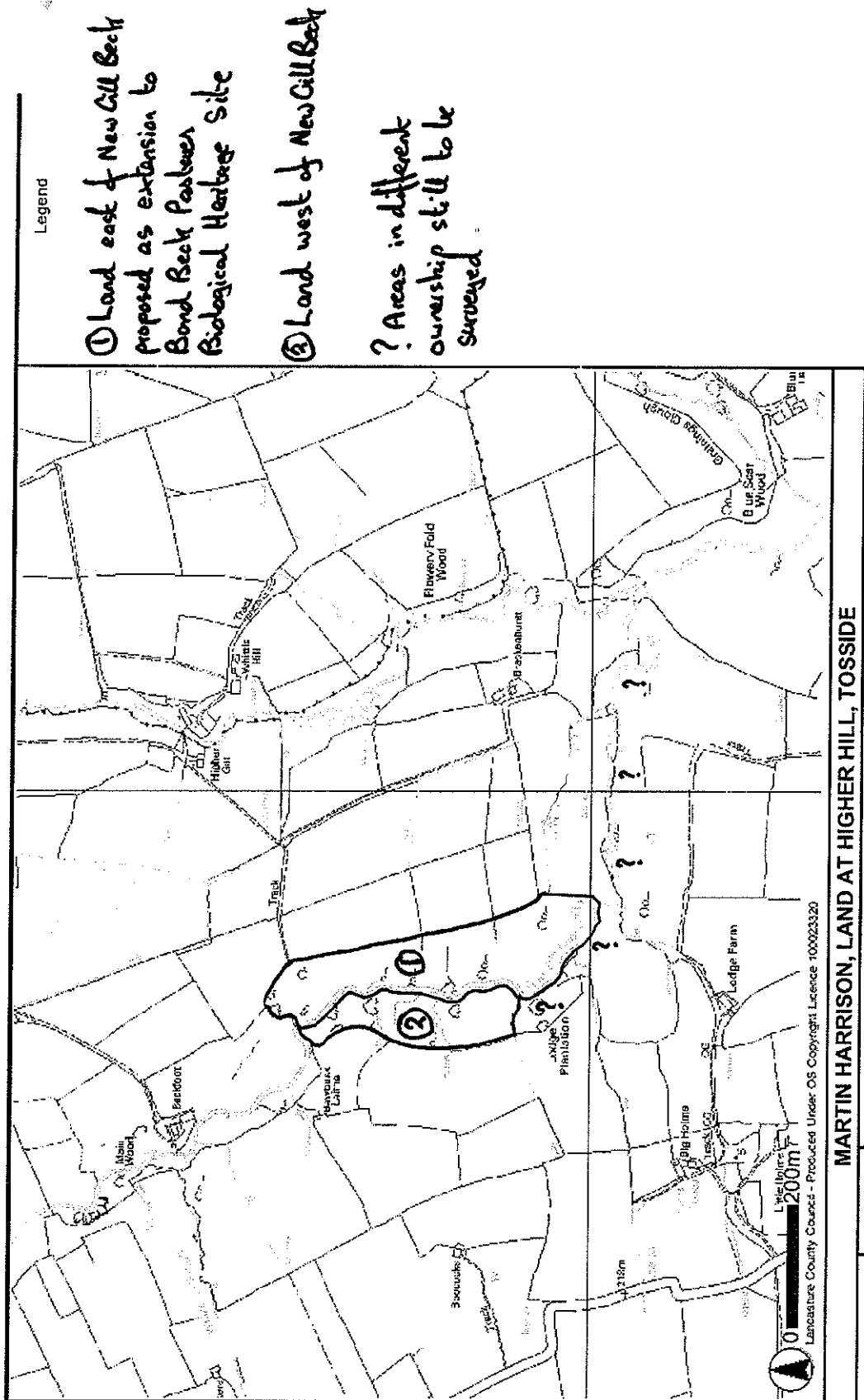
At present the whole valley is open to grazing. However, the area forms part of a larger management unit and stock appear to stick mainly to the more improved and accessible pasture to the east.

From a nature conservation point of view, it is desirable to maintain as much open grassland as possible on the steep banks to the east of the beck. This will require continued grazing, the avoidance of fertilizers and, if possible, some bracken and scrub control to prevent any further encroachment. It may be desirable to replant the hedge along the old hedge bank on the break of slope to create a stock proof boundary so that grazing levels can be more carefully controlled.

To the west of the beck there is very little species-rich grassland and the habitat is much more wooded in character. It is recommended that this area be either left as it is or fenced and planted with trees to accelerate natural woodland regeneration.

The best way forward will depend on the options and payments available in Defra's new Higher Tier Environmental Stewardship Scheme details of which should be available in April 2005.

Margaret Evans
Ecologist, Lancashire Rural Futures



HABITAT MANAGEMENT – MEADOWS & PASTURES

What sites are important for wildlife?

Old meadows and pastures that have not been intensively managed are the grasslands of the greatest nature conservation importance. These grasslands support a rich mixture of grasses and flowers and an abundance of insects and other wildlife. Many of the most important grasslands for wildlife are Biological Heritage Sites.

Depending on the soil conditions and past management, different mixtures of wild flowers occur. On drier ground plants such as common bird's-foot-trefoil, pignut, lady's-mantle, yellow rattle, oxeye daisy, rough hawkbit, common knapweed and quaking grass may be found. Plants such as marsh-marigold, meadowsweet and cuckooflower may occur on wetter ground.

In spring and early summer the grasslands may also be home to breeding birds like curlew and lapwing. Many interesting invertebrates such as the common blue butterfly, cinnabar moth and grasshoppers also thrive in this habitat.

What are the threats?

Since 1930, 97% of England's traditional wild flower meadows have disappeared. Species-rich pasture has also declined dramatically. Grasslands have been a particular target for agricultural intensification. Many have been converted to arable or improved agriculturally by drainage, fertilisation, ploughing and reseeded with productive rye-grasses. The switch from hay to silage and over-grazing have also contributed to their decline.

Hay Meadow Management

It is important that traditional meadow management continues on these flower-rich sites. Hay cutting and aftermath grazing are needed to maintain a sward rich in grasses and wild flowers. In the absence of either, dead plant litter will build up, smothering the sward and causing it to become rank and dominated by a few coarse grasses at the expense of a diversity of more

interesting plants. Left unmanaged, the meadow would be invaded by scrub.



From a nature conservation point of view, meadows should be cut as late in the season as is reasonable. As a general rule, meadows should not be cut for hay before mid July, and ideally not before August at least one year in three. Cutting hay no earlier than mid-July allows most of the flowering plants the chance to set seed and ensures that ground nesting birds are not disturbed.

After the hay cut, the aftermath should be grazed by cattle or sheep. This is normally only carried out until late autumn, as the ground becomes wetter and more easily poached into the winter. If needed, chain harrowing should be carried out as early as possible and not between mid March and mid July. This will decrease the disturbance to ground nesting birds.

Pasture Management

Grazing at low stocking levels and at the appropriate time of year is necessary to maintain a sward composed of a wide variety of grasses and wild flowers. The aim should be to remove the year's growth by light grazing over a period of

This habitat management information sheet is one in a series produced by the Lancashire Biological Heritage Sites Partnership which comprises Lancashire County Council, the Wildlife Trust for Lancashire, Manchester and North Merseyside, and English Nature (Cheshire to Lancashire Team). The partnership maintains the register of Lancashire's Biological Heritage Sites and works with Lancashire Rural Futures to deliver free conservation management and business advice to landowners and land managers.

HABITAT MANAGEMENT – MEADOWS & PASTURES

time, normally for at least ten weeks between April and December. The desired sward height will vary, depending on the nature of the site.

Light stocking levels in spring and summer will enable plants to flower and set seed and will reduce disturbance to ground nesting birds. Spring grazing should leave a sward of at least 1' (2.5 cm), so as not to remove all the growing shoots from the wild flowers.

The numbers of stock may be increased later in the year once the chicks have left the nests. A mix of cattle and sheep grazing, rather than sheep alone, will help to produce some tussocky ground which will provide suitable nesting places for many types of bird. If chain harrowing or rolling is needed it should be carried out either early in the year or left until late summer to avoid destroying the nests on the ground.



Marsh marigold

Drainage

No additional drainage should be undertaken. The soil should remain damp with a high 'water table' just below the surface. This will ensure soft ground for wading birds, which feed by probing their long beaks into the soil. In some cases, the area of land suitable for feeding by wading birds may be increased by blocking some existing drains to increase the wetness and by creating scrapes.

Fertilisers and Chemicals

The use of artificial fertilisers and slurry stimulates the growth of a few competitive grasses at the expense of the more sensitive wild

flowers. This is because these grasses are better at taking advantage of the rapid release of nutrients when the fertiliser or slurry is applied. The end result is the loss of many types of wild flowers. For this reason, artificial fertilisers and slurry should not be applied to species-rich grasslands.

The use of a light dressing of well rotted farmyard manure from cattle (preferably where this has been stored for a minimum of 4 months), may be acceptable where meadows are cut for hay on neutral soils and where this is established practice. The reason why farmyard manure is more acceptable is because the nutrients are released slowly, sustaining the fertility of the soil and enabling all the plants to have an equal chance to make use of them.

Grants and Advice

Grants and advice on managing species-rich grasslands are available. Defra's Environmental Stewardship Schemes offer the main source of financial support. Lancashire Rural Futures offers free management advice and assistance with grant applications.

Contacts

Biological Heritage Sites Partnership
C/o Environment Directorate
Lancashire County Council
Guild House, Cross Street
Preston PR1 8RD
Tel: 01772 534164

Lancashire Rural Futures
First Floor, Waterloo Mill
Waterloo Road
Clitheroe BB7 1LR
Tel: 01200 426433

Environmental Stewardship
DEFRA Rural Development Service
The Annexe, Barton Hall
Barton
Preston PR3 5RZ
Tel: 01772 865007

This habitat management information sheet is one in a series produced by the Lancashire Biological Heritage Sites Partnership which comprises Lancashire County Council, the Wildlife Trust for Lancashire, Manchester and North Merseyside, and English Nature (Cheshire to Lancashire Team). The partnership maintains the register of Lancashire's Biological Heritage Sites and works with Lancashire Rural Futures to deliver free conservation management and business advice to landowners and land managers.

HABITAT MANAGEMENT - WOODLANDS

WOODLANDS IN LANCASHIRE

Most of Lancashire, and indeed the rest of Britain, was covered in woodland around 4000-5000 years ago. This woodland had existed since the last ice age and much of the county's wildlife thrived within it.

Today, only about 3.5% of Lancashire supports woodland. This comprises broad-leaved, mixed and coniferous woodland and may be semi-natural or planted. This reduction in woodland has resulted in the loss or decline of many plant and animal species. Those woodlands that remain are therefore in need of careful protection. Many of the most important woods for wildlife are Biological Heritage Sites.

Ancient Woodland

Ancient Woodland is the name given to sites that have been continuously wooded since at least 1600 AD. This timespan has enabled many species of plant and animal to form stable communities and many rare species are dependent on ancient woodland. From a wildlife point of view, ancient semi-natural woods are the most important, although recent, semi-natural woods can also be very valuable. Just over 1% of the land area in Lancashire is ancient, semi-natural woodland.

WOODLAND MANAGEMENT

The management a woodland receives plays an important role in shaping its characteristics and the species it supports.

Woodland species are generally sedentary and vulnerable to lapses or changes in management. Where changes in woodland management are planned, seek specialist advice.

Some traditional forms of management, for example coppicing, may have been carried out for centuries at a site and should ideally be continued.

Woodland Grazing

Grazing by domestic or wild stock may harm the woodland if excessive. Grazing often prevents the regeneration of trees and destroys other vegetation. In such circumstances, grazing must be controlled by fencing. Deer populations are increasing in most parts of the county. In the absence of natural predators their numbers may need excluding or controlling.

Where woodlands have traditionally been grazed they may contain characteristic communities. Species that prefer relatively open conditions such as pied flycatcher may be present.



Pied flycatcher

Rides and Glades

Open spaces such as rides and glades provide habitat for many species. They should be maintained by mowing and the cuttings removed to prevent excessive nutrient accumulation. Mowing should ideally be carried out every 1-3 years on a rotational basis, so that various stages of growth are maintained.

Felling

Where felling is necessary, it is preferable to fell species that are not locally native, for example beech, sycamore and conifers. These species provide fewer benefits for wildlife and may shade the woodland floor, preventing wildflowers from growing. Old native trees are particularly valuable for wildlife and should not be felled.

HABITAT MANAGEMENT - WOODLANDS



Yellow archangel

Planting

The long-term health of a woodland depends on the presence of trees of varying ages. It is essential that young trees are present, as they will eventually replace older individuals. Natural regeneration is the ideal. Where tree planting is considered necessary, saplings of local provenance should be used.

Dead Wood

Wherever possible dead wood should be retained. Dead and dying trees play a very important role in woodland ecosystems. Up to a third of woodland species, including bats and woodpeckers, require standing or fallen dead wood as food or shelter.

Where dead or dying trees are considered unsafe, they should be retained as close as possible to the position where they are felled.

Introduced Species

A number of invasive non-native species may be present. These include rhododendron and Himalayan balsam. Specialist advice is available about the control of these species.

GRANTS AND ADVICE

Grants and advice on managing woodlands for nature conservation are available. The Forestry

Authority's Woodland Grant Scheme offers the main source of financial support. The management of small clough woodlands may alternatively be included within a Countryside Stewardship Scheme application. Advice and help in the sustainable management of woods for their timber products and other benefits is available from the Lancashire Woodlands Project.

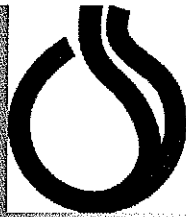
Contacts:

Woodland Grant Scheme
Forestry Commission
North West England Conservancy
Peil Wyke
Bassenthwaite Lake
Cockermouth
Cumbria
CA13 9YG Tel: 017687 76616

Countryside Stewardship
Rural Development Service
DEFRA
The Annexe
Barton Hall
Barton
Preston
PR3 5RZ Tel: 01772 865007

Biological Heritage Sites
BHS Project
c/o Environment Directorate
Lancashire County Council
Guild House
PO Box 9
Cross Street
Preston
PR1 8RD Tel: 01772 531368

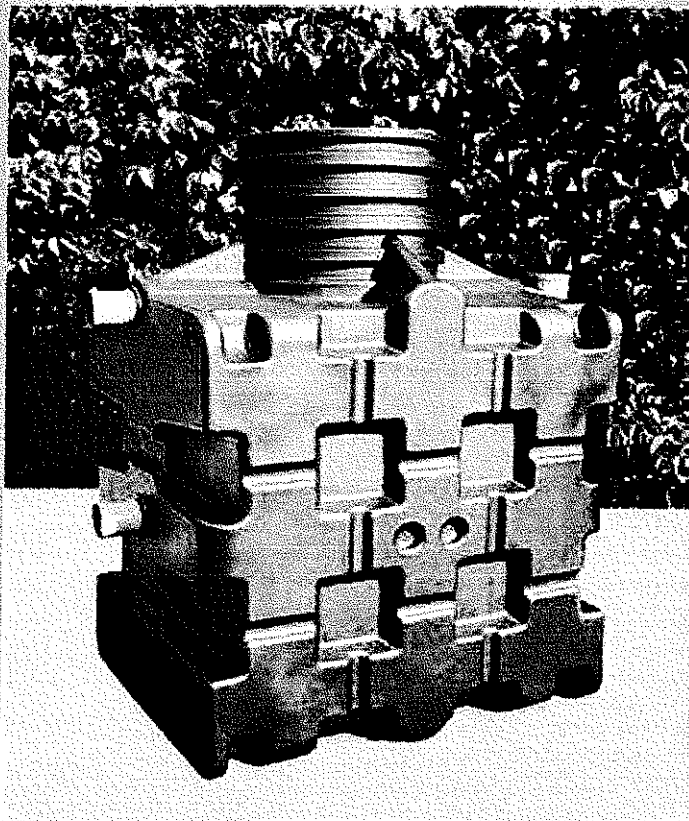
Lancashire Woodlands Project
Environment Directorate
Lancashire County Council
Guild House
Po Box 9
Cross Street
Preston
PR1 8RD Tel: 01772 533917



BIOROCK

EN 12566-3: 2005

Effluent Standard down to:
5mg/L BOD
5mg/L Suspended Solids
5mg/L Ammoniacal Nitrogen



No Electricity
Packaged Sewage Treatment Units
Septic Tank Upgrades

SAVE UP TO £600 PER YEAR - EVERY YEAR



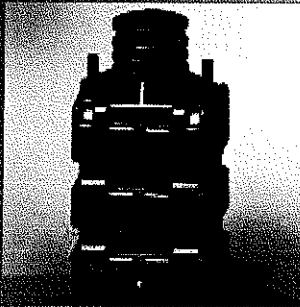
BIOROCK

The BIOROCK is designed to biologically purify pre-settled domestic wastewater, free of oils and grease. It is a modular system and operates in a unique way that eliminates the need for electricity to power the treatment process.

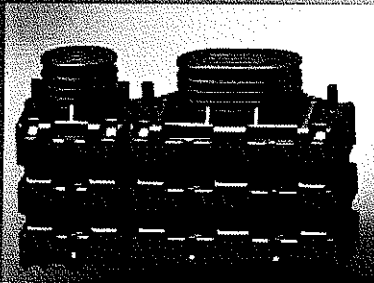
The BIOROCK is the most sustainable Sewage Treatment Unit available as the whole treatment process operates under gravity and should electricity be required for the outlet it can be done via solar power. If however mains electricity is used to pump the treated effluent a year it cost around £1 per person per year.

As a result of its simple operation a 6 person BIOROCK™ can save approximately **£380 per year** in running costs compared to the UK market leader. **This is a saving of approximately £3800 over 5 years.**

The bigger the system the bigger the saving.



6 Person BIOROCK Filter



6 Person BIOROCK system with the optional 3000L Biorock Settlement Tank

Advantages of BIOROCK

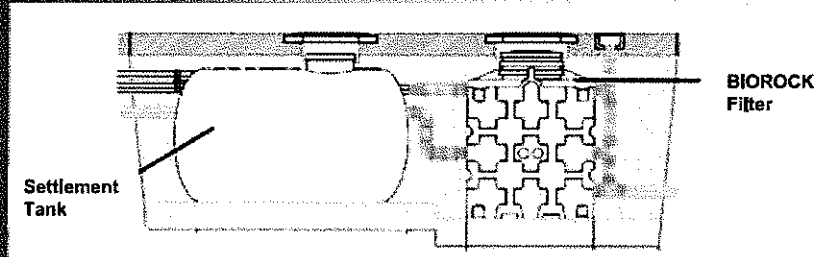
- ☐ No energy consumption for the purification
- ☐ Can operate using no electricity
- ☐ Long emptying interval
- ☐ No internal moving parts
- ☐ Lowest running costs of any system
- ☐ Smallest carbon footprint of any system
- ☐ Best effluent quality of any standard UK system
- ☐ Ability to handle absence periods (holidays)
- ☐ Fast start-up period
- ☐ Ability to handle intermittent loadings (peak and low flows) i.e. holiday homes.
- ☐ Compact and underground installation
- ☐ Low visual footprint
- ☐ Easy to install
- ☐ Minimum maintenance
- ☐ Odour and noise free
- ☐ Official Certificate of EN 12566-3: 2005
- ☐ Due to its modular construction populations of up to 150 can be catered for.

Standard Biorock System	5:5:5	10:10:10
Standard Biorock System with optional 3000L Settlement Tank	2-4	20:30:20 (BOD:SS:NH4-N)

BIOROCK® – How It Works

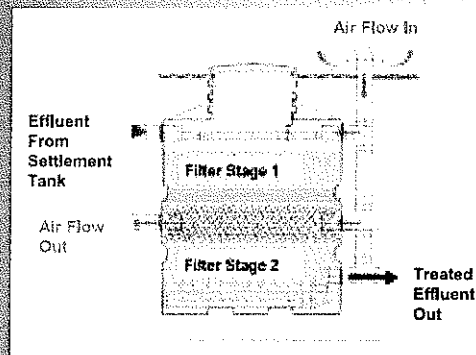
BIOROCK® treats wastewater in the way nature intended. In nature sewage is broken down in the air and the soil **not** in water. This is because oxygen is the key requirement for aerobic digestion and there can only ever be a limited amount of oxygen in water.

The BIOROCK is a dual tank Sewage Treatment Plant – Settlement Tank followed by the BIOROCK Filter.



The raw sewage first enters the settlement tank which separates the solids from the liquid part of the effluent.

The pre-filter digests most of the solids anaerobically and should emptying every 2 to 4 years depending on use. The liquid effluent then enters the BIOROCK biofilter which uses layers of natural stone fibre material in contact with air to filter the effluent in exactly the same way as Nature treats effluent in the soil or on the margins of a pond.



Bacteria grow in the stone fibre and digest the organic material as it trickles through. Instead of using electricity-guzzling compressors to provide the air, the BIOROCK biofilter utilises the wind and natural 'chimney-draft' to pull the air through the plant with no electricity required.

The natural stone fibre works with nature, not against it and is self-cleaning.

The Settlement Tank and Pre Filter are included in the sewage treatment package.

BIOROCK® – Options

Gravity: For sites on a slope no electricity is required at all as the outlet can be run straight to a soakaway or watercourse via gravity.

Standard Pump: For most sites not on a slope a pump will be required to raise the treated effluent to within 500mm below ground level. From here the treated effluent will run under gravity to your soakaway or watercourse. This pump is the only electrical component and costs around 30p per person per year to run.

Solar Powered Pump: Where it is difficult or costly to run electricity to the BIOROCK a solar powered pump can be provided.

Septic Tank Upgrade: If you already have an existing rectangular or cylindrical septic tank it can be upgraded to a full Sewage Treatment Plant by simply adding the BIOROCK Filter on to the outlet.

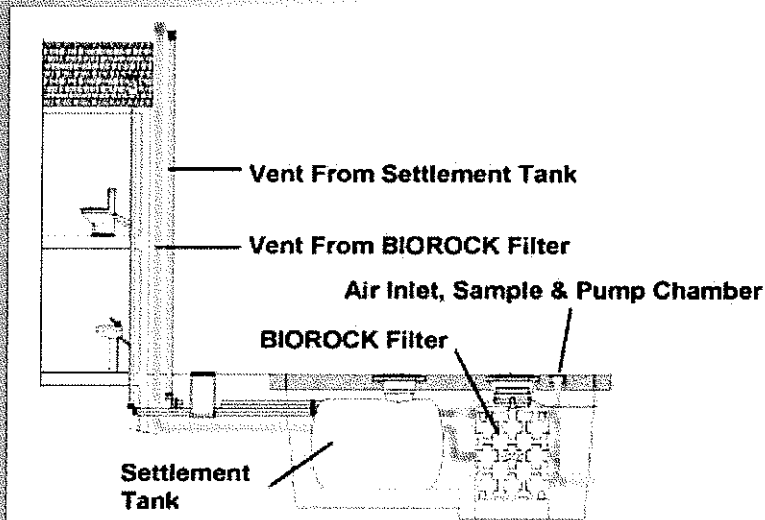
Settlement Tanks: The Settlement Tanks come in two classes. The Class 1 is thicker and only requires a concrete base with a granular surround. The Class 2 requires a full concrete surround. The Class 2 is supplied as standard.

EN 12566-3: 2005

Installation of the BIOROCK is simple, easy and cheap to

BIOROCK operates in a unique way and is easy to install. It can be installed or overseen by a professional who understand the

For more information below to find out more about your area.



BIOROCK® – Maintenance

Like all sewage treatment units, the system requires regular servicing. This is a Condition of your E.A. Consent to Discharge. The BIOROCK comes with a 10yr. tank warranty which is also only valid if the unit is serviced as per the manufacturers' instructions by a qualified person.

Typical de-sludge intervals are 2 to 4 years. Service agreements are available through Waste Tech Environmental Ltd.

Keep our streams and rivers safe for our children. **Never** allow unqualified persons to tamper with your unit.

BIOROCK® – Technical Specification

	BIOROCK 6	BIOROCK 10	BIOROCK 15
Population	6	10	15
Settlement Tank	2676mm x 1200mm x 1600mm (Length x Width x Height)	2787mm x 1500mm x 1800mm (Length x Width x Height)	4202mm x 1500mm x 1800mm (Length x Width x Height)
Settlement Tank Inlet Invert	500mm	500mm	500mm
Settlement Tank Outlet Invert	550mm	550mm	550mm
BIOROCK Blotter	1150mm x 1150mm x 2040mm (Length x Width x Height)	1400mm x 1150mm x 2040mm (Length x Width x Height)	2150mm x 1150mm x 2040mm (Length x Width x Height)
BIOROCK Inlet Invert	600mm	600mm	600mm
BIOROCK Outlet Invert	1740mm	1740mm	1740mm

BIOROCK® – Contact

Waste Tech Environmental Ltd.
The Byre, Foggathorpe, Selby, N. Yorks, YO8 6PX

Tel: 01757 289423 / 288022
Fax: 01757 289423 / 288022
Skype: maureenannwebb / j_d_webb
Email: info@biorock-uk.com

www.biorock-uk.com

Your Local Installer is: