
SUSTAINABILITY STATEMENT

ON

FORMER WILLIAM FREEMAN FACTORY
WAKEFIELD ROAD
BARNSELY

AS AT

AUGUST 2009

John R Paley Associates
1 Red Hall Crescent
Paragon Business Village
Wakefield
WF1 3HX

T +44 (0)1924 383322
F +44 (0)1924 384381

- architectural design
- town planning
- landscape architecture



John R Paley Associates

Sustainability Statement for Wakefield Road, Mapplewell

1. Introduction

The purpose of this report is to provide an overview of the approach to sustainability adopted for the development at Wakefield Road, Barnsley. The most readily cited definition of sustainable development is development that, "meets the needs of the present without compromising the ability of future generations to meet their own needs." (Bruntland, 1987. Report of the World Commission on Environment and Development). The sustainability of the Wakefield Road development can be measured by its long-term economic, environmental and social impact.

This sustainability report has been compiled with reference to national, regional and local policy and guidance on sustainable development and the following documents and reports have been considered throughout the design process and referenced in this report.

- Code for Sustainable Homes Technical Guide (May 2009) – Department for Communities and Local Government.
- Meeting the Energy Challenge – A White Paper on Energy (May 2007) – Department of Trade and Industry, HM Government
- Geo-Environmental Investigation Report (August 2007). Joynes Pike & Associates Ltd.
- Protected Fauna Survey (July 2008). Derek A Whitcher Ltd, Wildlife Consultants.
- Arboricultural Survey to BS 5837:2005 (July 2008). JCA Limited.

2. Site Description

The site has been the subject of a number of surveys, including topographic, geo-environmental and protected fauna. The findings of these surveys are discussed in greater detail in the Ecology and Biodiversity section of this report and are summarised below.

Occupying approximately 4.44 hectares, the site is located at the former William Freemans factory and grounds and is situated off Wakefield Road, Mapplewell, Barnsley.

The site can be divided into two distinct areas; an area of hardstanding containing the factory buildings and areas of waste land to the North and East of the factory buildings.

The topography slopes gently upwards from the south east of the site towards the north. Wakefield Road forms a boundary to the West of the site, a dismantled railway forms a boundary to the east and residential housing and open land form the boundaries to the south and north respectively.

3. Ecology and Biodiversity

3.1 Overview

Ecological value is an important factor when considering the sustainability of the proposed development and is influenced by the previous use of the site and the presence of ecological features. The re-use of existing sites helps to slow down the destruction of natural habitats and where homes are constructed, any damage to local ecology or areas of natural beauty should be avoided. Whilst being an ecological advantageous option to build on and revitalise a previously derelict site, care must be exercised if it has been derelict for some time as the site may be inhabited by rare, protected or locally important species and therefore have hidden ecological value.

For the purpose of discussing ecology and biodiversity the site can be divided into two distinct areas; the area of the factory buildings and hard standing and the areas of waste land to the east and north of the site. In general terms the disused factory buildings and surrounding hard standing can be considered to be of no ecological value and the waste land areas to the north and east of the site can be considered to have potential ecological value.

In order to form a comprehensive measure of the ecological value of the site a full geo-environmental report was commissioned and produced by Joynes Pike and Associates Ltd to measure environmental impact considerations. Additionally a full site arboricultural survey was produced by JCA Ltd and a protected fauna survey was carried out by Derek A Whitcher Ltd to formulate an accurate account of the sites current ecological value.

3.2 Geo-environmental Report

The Geo-environmental Investigation report by Joynes Pike & Associates, (Ref: NLM/DRS/120700197.20070986, 10 August 2007) has identified a number of environmental considerations related to the sites past use. The southern part of the waste land to the east of the site was previously used for landfill and contains elevated levels of cadmium, nickel, chromium and zinc. Also identified were two separate local authority air pollution prevention controls registered to the site, one pollution incident to controlled waters and one substantiated pollution incident, all relating to the past period of rubber seal production at the factory.

Environmental considerations relating to the site in its current condition include a number of contaminated inspection pits within the factory building and chemical storage tanks to the rear of the factory. Additionally a Type 3 Asbestos Survey is recommended prior to demolition as it is suspected that there is a significant quantity of asbestos cement and possible asbestos insulation board within the buildings on site.

In response to the geo-environmental report findings a series of remedial measures have been compiled to be implemented on site, prior to development and are detailed below:

"General cleaning of the hardstanding prior to grubbing up. This material should be crushed, screened and reused subject to appropriate chemical contamination testing."

"Inspection pits will require pumping and removal to a suitably licensed facility."

"Considering the previous use on site former drainage runs may contain significant contamination and may therefore require careful removal from site."

"Tanks will require pumping out and removing to a suitable licensed waste management facility."

"Cleaning of the hardstanding in area A to prevent contamination of crushed product."

"Possible removal of grossly contaminated materials in the areas of tanks and inspection pits."

"Removal of confirmed asbestos containing materials by a suitably licensed asbestos removal contractor."

From the remedial measures recommended by the geo-environmental investigation (above), it is clear that development of the site will facilitate the removal from site and suitable disposal of a range of materials that currently constitute an environmental contamination and health risk. Additionally, measures will be taken to ensure that a suitable growing medium will be provided for all garden areas within the development. These key measures will have a pronounced positive impact on the ecological value of the site.

3.3 Protected Fauna Survey

A Protected Fauna Survey was carried out by Derek A Whitcher Ltd. Wildlife Consultants in July 2008 to thoroughly search the entire site for evidence of badger, water vole, otter, bats and great crested newts. All derelict buildings, unimproved grasslands, trees and ponds were surveyed and additionally, the National Biodiversity Network Gateway website was consulted for records of protected species. The results of the protected fauna survey are listed below:

"There are no watercourses on the site and the three small ponds are not suitable habitat for water voles, otters or crayfish" (DAW, para 3.4.7).

"It is unlikely that these ponds will be great crested newt breeding ponds as there are no other ponds identified within 500m of the survey area" (DAW, para 5.3).

"No badger setts or badger field signs were identified within the survey area" (DAW, para 3.4.6)

"Buildings A and B on the site has very low potential for roosting bats and buildings C and D have no potential for roosting bats. No bat field signs were identified on the site" (DAW, para 4.3).

3.4 Ecology and Biodiversity Summary

The Geo-environmental survey has shown that there are a number of risks to the environment on the site in its current form, including chemical contamination and the suspected presence of asbestos. A large proportion of the site contains derelict buildings and hard standing areas which have no ecological value. A remediation program will be put into place to clean and remove all contaminating materials, removing the present ecological risk and having an extremely positive effect on the ecological value of the site.

The protected fauna survey has shown that there are no rare or protected species within the development area and therefore it can be assumed that development will not impact on any potential areas of hidden ecological value.

In summary, when the results of all of the above reports and the current derelict and contaminated state of the site are taken into consideration, development of the site based on the proposed scheme will make a measurable and positive contribution to the ecological value of the site.

4 Sustainable Travel Options

A Travel Plan Framework has been completed by Bryan G Hall (Ref: 08-334-001.02) and contains details of the accessibility of the site for travel by modes other than the private car. The following information relating to sustainable travel has been extracted from this report:

4.1 Walking

"The maximum recommended walking distance of 2.0 kilometres covers a number of Bus Stops on the B6131 Bar Lane and the A61 Wakefield Road, the closest of which are approximately 400 metres from the centre of the site, and in parts, the areas of Mapplewell and New Lodge including lots of facilities, including many shops, a library, a sports centre and a post office." (Paragraph 2.1.6, p8)

"Mapplewell Primary School is situated on Greenside Avenue, Staincross, which is approximately 1.4 kilometres walking distance of the application site and Wellgate Primary School is situated on George Street, Mapplewell approximately one mile walking distance of the application site, within the preferred maximum walking distance of 2.0km for walking to schools. Footway provision along this route is good and follows well lit and overlooked residential roads with signalised pedestrian crossings existing at the signalised junctions." (Paragraph 2.1.7, p8)

4.2 Cycling Accessibility

"The majority of the Barnsley conurbation including the Town Centre lies within an 8 kilometre catchment area and Barnsley has a network of cycle routes and lanes." (Paragraph 2.3.2, p10).

"Darton Railway Station is approximately 3.9 kilometres and Barnsley Interchange approximately 4.3 kilometres from the site and are therefore well within the cycling catchment area." (Paragraph 2.3.3, p10).

4.3 Public Transport Accessibility

"There are existing bus stops on both sides of the B6131 Bar Lane and the A61 Wakefield Road, the closest being approximately 400 metres walking distance from the centre of the site. The route from the proposed development site to the bus stops is fully lit with adequate footways, dropped crossings and tactile

paving present with signalised pedestrian crossings located at the signalised junctions. These bus stops are served by bus numbers 1, 11 and 96. The 96 stops at Darton Railway Station and the 1 and 11 both within walking distance of it, all of these services stop at Barnsley Interchange. The 96 provides a direct route from Barnsley Interchange to Wakefield City Centre where both local and national bus and train services are available". (Paragraph 2.2.1, p8)

"The nearest railway station to the development site is Darton Railway Station. The station is located on Station Lane approximately 3.9 kilometres from the development site which is within a reasonable cycling distance from the development and as previously mentioned is accessible using bus service numbers 1, 11 and 96. The station is managed by Northern Rail and provides an hourly service to Barnsley Interchange and also to Leeds and Sheffield where both local and national services are available." (Paragraph 2.2.2, p9)

4.4 Sustainable Travel Options - Summary

"The site is therefore considered to be in a sustainable location in relation to the availability of public transport, walking and cycle provision. It will further the aims and objectives of the Central and Local Government's Sustainable Transport Policy by promoting the use of alternative modes of transport and hence reducing the need to travel by private car." (Paragraph 2.3.4, p10)

5 Energy and Carbon Dioxide Emissions

5.1 Residential Development

The residential layout has been produced to ensure that a large proportion of housing has a front or rear elevation and roof orientated within 35 degrees of due south. The layout also features generous spacing between housing blocks, which ensures that overshadowing does not compromise available solar gains.

A south-facing orientation provides increased solar gain through glazing which reduces energy consumption for space heating as well as providing a suitable roof mounting space for a solar hot water heating system or Photo-Voltaic panels, providing an *effective and robust future upgrade path* for the utilisation of zero carbon technologies.

Solar Hot Water heating is considered to be a proven and robust renewable technology that can provide around a third of the average house's hot water needs, reducing the average domestic CO₂ emissions by around 325kg per year (online: www.energysavingtrust.org.uk).

The energy statement that accompanies this statement has established that the installation of 3m² evacuated tube solar hot water systems to the 40 dwellings with a suitable roof orientation will supply 10.2% of the total energy demand of the residential development.

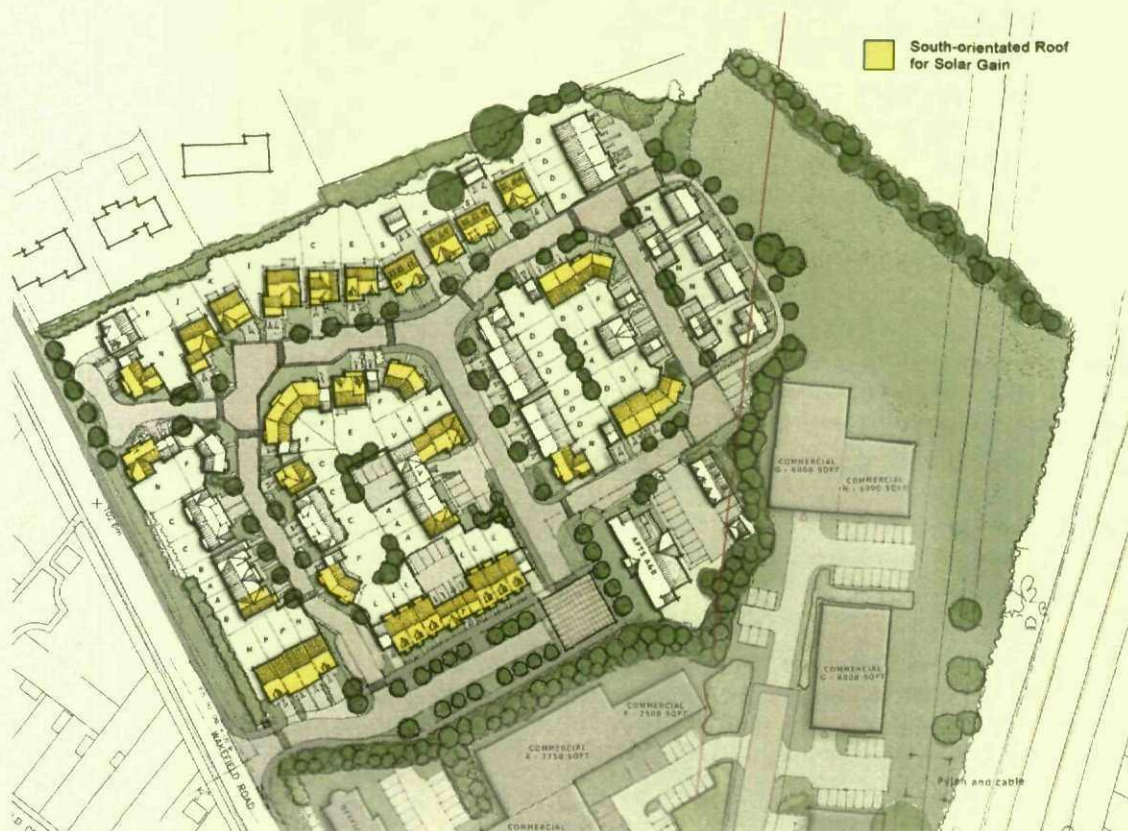


fig 2: House and Roof orientation for Solar Gain.

The thermal insulation performance of each house type will be to a level above the requirements outlined in the current Building Regulations. Additional conservation of energy will be achieved through the implementation of high efficiency condensing boilers and the provision of dedicated energy-efficient internal lighting.

5.2 Commercial Development

Offices and industrial units will be designed to achieve high levels of energy efficiency in use and provide a healthy work environment. The Health and Wellbeing of building users will be prioritised with adequate daylight levels, anti-glare measures and suitable artificial lighting levels with zone control.

Appropriate ventilation and thermal comfort will be provided with local control for temperature. Ambient Internal noise levels will be below specified levels. The Energy requirements and subsequent Carbon Dioxide emissions of all buildings will be minimised through high efficiency building services, high performance building fabric and focus on building services whole life performance.

A feasibility study will be carried out to consider renewable and low emission energy sources and where possible a minimum of 10% of total energy demand will be supplied through renewable energy. Carbon Dioxide emissions from energy in use will be below those required for compliance with building regulations.

6 Surface water run-off

As previously mentioned the majority of the existing site is covered with impervious surfacing which does not allow water infiltration to the ground.

The generous garden areas provided for all dwellings will reduce and delay the discharge of rainfall to public sewers and watercourses at times of heavy rainfall.

It is anticipated that the above measures will ensure that the flood risk following development will be no greater than the current risk associated with the site in its undeveloped state.

According the Environment Agency the site falls within an area "which fell outside the extent of the extreme flood, at the time of our assessment of the likelihood of flooding. Generally this means that the chance of flooding each year from rivers or the sea is 0.1% (1 in 1000) or less." (Environment Agency Flood Map. Online. <http://maps.environment-agency.gov.uk>).

This measure of flood risk is equivalent to Zone 1 – Low Probability of flooding, as defined in the Code for Sustainable Homes Technical Guide (CSH Tech Guide. May 2009).



Fig 3: Environment Agency Flood Risk Map

7 Health and Wellbeing

7.1 Daylighting

Adequate access to daylight will be provided in all homes and office/industrial units to improve the health and wellbeing of occupants and workers by providing a pleasant interior environment and to reduce the need for artificial lighting.

Generous spacing of the housing will ensure that the majority of windows on front and rear elevations will have a clear view of the sky and thus improved levels of daylighting.

All house types feature windows that have been sized and located to maximise the quality and quantity of natural light in interior spaces. In addition, the site layout design addresses the need to minimise obstruction to visible sky from houses and trees both within and surrounding the site.

7.2 Sound Insulation

Construction detail, materials choice and design will ensure that the performance of the separating elements of attached dwellings will achieve a standard of sound insulation equal to or greater than the standard required for compliance with Building Regulations Approved Document E. This will reduce the likelihood of noise complaints amongst neighbours and help to ensure a healthy and harmonious residential environment.

Ambient internal noise levels in all office and industrial units will be below the minimum required levels.

7.3 Private Space

All dwellings will be provided with secure private outdoor space in the form of generous gardens that can be utilised as secure playing spaces for children, for horticultural purposes or as a convenient place for fresh air to improve occupier quality of life. Additionally it is expected that the horticultural development of the gardens will further enhance the ecological value of the site.

7.4 Security

Consideration has been given to security issues within the site and the development design reduces the opportunity for theft crime. This is essential to encourage occupants to feel safe and secure within the development.

8 Conclusion

The sustainability of the Wakefield Road development can be measured by the fact that it will contribute to the present and recognised need for more housing whilst having a positive impact on the ecological value of the site through the remediation of what is currently a derelict and contaminated site.

The proposed commercial development of the site will support employment opportunities for people who live close to the development in Athersley and Mapplewell and it is anticipated that the skills of these people will be developed as a result. The provision of new office and industrial units will encourage investment and is likely to improve productivity and competitiveness within the area.

The proposed layout introduces a large number of new trees and generous garden areas to the development. Additionally the majority of housing has a south orientation and generous spacing to ensure useful solar gains and good daylighting. These measures will help to minimise housing energy use and carbon dioxide emissions regardless of specific house type design.