



RIBBLE VALLEY
BOROUGH COUNCIL

07 AUG 2012

FOR THE
ATTENTION OF

For office use only

Application No.

Date received

Fee paid £

Receipt No:

320120752 P

Council Offices, Church Walk, Clitheroe, Lancashire. BB7 2RA Tel: 01200 425111 www.ribblevalley.gov.uk

Application for Planning Permission. Town and Country Planning Act 1990

You can complete and submit this form electronically via the Planning Portal by visiting www.planningportal.gov.uk/apply

Publication of applications on planning authority websites

Please note that the information provided on this application form and in supporting documents may be published on the Authority's website. If you require any further clarification, please contact the Authority's planning department

Please complete using block capitals and black ink

It is important that you read the accompanying guidance notes as incorrect completion will delay the processing of your application

1. Applicant Name and Address

Title: First name:
Last name:
Company (optional):
Unit: House number: House suffix:
House name:
Address 1:
Address 2:
Address 3:
Town:
County:
Country:
Postcode:

2. Agent Name and Address

Title: First name:
Last name:
Company (optional):
Unit: House number: House suffix:
House name:
Address 1:
Address 2:
Address 3:
Town:
County:
Country:
Postcode:

3. Description of the Proposal

Please describe the proposed development, including any change of use:

SUBSTITUTION OF HOUSE TYPE, ROTS
4 & 7.

Has the building, work or change of use already started?

☒ Yes

☐ No

If Yes, please state the date when building, work or use were started (DD/MM/YYYY):

JAN 11

(date must be pre-application submission)

Has the building, work or change of use been completed?

☐ Yes

☒ No

If Yes, please state the date when the building, work or change of use was completed: (DD/MM/YYYY):

(date must be pre-application submission)

4. Site Address Details

Please provide the full postal address of the application site

Unit: House number: House suffix: House name: Address 1: STALLANT LODGEAddress 2: PRIMROSE ROADAddress 3: Town: CLITHEROECounty: LANCASHIREPostcode (optional):

Description of location or a grid reference (must be completed if postcode is not known):

Easting: Northing: Description: **5. Pre-application Advice**Has assistance or prior advice been sought from the local authority about this application? ☐ Yes ☒ No

If Yes, please complete the following information about the advice you were given (This will help the authority to deal with this application more efficiently)

Please tick if the full contact details are not known, and then complete as much as possible: ☐Officer name: Reference: Date (DD/MM/YYYY):
(must be pre-application submission)Details of pre-application advice received? **6. Pedestrian and Vehicle Access, Roads and Rights of Way**Is a new or altered vehicle access proposed to or from the public highway? ☐ Yes ☒ NoIs a new or altered pedestrian access proposed to or from the public highway? ☐ Yes ☒ NoAre there any new public roads to be provided within the site? ☐ Yes ☒ NoAre there any new public rights of way to be provided within or adjacent to the site? ☐ Yes ☒ NoDo the proposals require any diversions /extinguishments and/or creation of rights of way? ☐ Yes ☒ No

If you answered Yes to any of the above questions, please show details on your plans/drawings and state the reference of the plan (s)/drawings(s)

7. Waste Storage and CollectionDo the plans incorporate areas to store and aid the collection of waste? ☒ Yes ☐ No

If Yes, please provide details:

 DOMESTIC COLLECTION
ARRANGEMENTHave arrangements been made for the separate storage and collection of recyclable waste? ☒ Yes ☐ No

If Yes, please provide details:

 DOMESTIC BIN
STORAGE AREAS**8. Authority Employee / Member**With respect to the Authority, I am: (a) a member of staff
(b) an elected member
(c) related to a member of staff
(d) related to an elected memberDo any of these statements apply to you? ☐ Yes ☒ No

If Yes, please provide details of the name, relationship and role

9. Materials

If applicable, please state what materials are to be used externally. Include type, colour and name for each material:

	Existing (where applicable)	Proposed	Not applicable	Don't Know
Walls		NATURAL STONE	☐	☐
Roof		NATURAL SLATE	☐	☐
Windows		BLACK UPVC	☐	☐
Doors		BLACK UPVC	☐	☐
Boundary treatments (e.g. fences, walls)		TIMBER + STONE	☐	☐
Vehicle access and hard-standing		BITMAC WITH STONE BORDERS	☐	☐
Lighting		—	☐	☐
Others (please specify)		—	☐	☐

Are you supplying additional information on submitted plan(s)/drawing(s)/design and access statement?

☐ Yes

☒ No

If Yes, please state references for the plan(s)/drawing(s)/design and access statement:

10. Vehicle Parking

Please provide information on the existing and proposed number of on-site parking spaces:

Type of Vehicle	Total Existing	Total proposed (including spaces retained)	Difference in spaces
Cars			
Light goods vehicles/ public carrier vehicles			
Motorcycles			
Disability spaces			
Cycle spaces			
Other (e.g. Bus)			
Other (e.g. Bus)			

11. Foul Sewage

Please state how foul sewage is to be disposed of:

- ☐ Mains sewer
 ☐ Cess pit
☐ Septic tank
 ☒ Other
☐ Package treatment plant

Are you proposing to connect to the existing drainage system? ☐ Yes ☒ No

If Yes, please include the details of the existing system on the application drawings and state references for the plan(s)/drawing(s):

12. Assessment of Flood Risk

Is the site within an area at risk of flooding? (Refer to the Environment Agency's Flood Map showing flood zones 2 and 3 and consult Environment Agency standing advice and your local planning authority requirements for information as necessary)

☐ Yes ☒ No

If Yes, you will need to submit a Flood Risk Assessment to consider the risk to the proposed site

Is your proposal within 20 metres of a watercourse (e.g. river, stream or beck)? ☒ Yes ☐ No

Will the proposal increase the flood risk elsewhere? ☐ Yes ☒ No

How will surface water be disposed of?

- ☐ Sustainable drainage system
 ☒ Existing watercourse
☐ Soakaway
 ☐ Pond/lake
☐ Main sewer

13. Biodiversity and Geological Conservation

To assist in answering the following questions refer to the guidance notes for further information on when there is a reasonable likelihood that any important biodiversity or geological conservation features may be present or nearby and whether they are likely to be affected by your proposals

Having referred to the guidance notes, is there a reasonable likelihood of the following being affected adversely or conserved and enhanced within the application site, or on land adjacent to or near the application site?

a) Protected and priority species:

- ☐ Yes, on the development site
☒ Yes, on land adjacent to or near the proposed development
☐ No

b) Designated sites, important habitats or other biodiversity features:

- ☐ Yes, on the development site
☐ Yes, on land adjacent to or near the proposed development
☒ No

c) Features of geological conservation importance:

- ☐ Yes, on the development site
☐ Yes, on land adjacent to or near the proposed development
☒ No

14. Existing Use

Please describe the current use of the site:

ONGOING DEVELOPMENT SITE

Is the site currently vacant? ☒ Yes ☐ No

If Yes, please describe the last use of the site:

When did this use end (if known)? DD/MM/YYYY

(date where known may be approximate)

Does the proposal involve any of the following?

If yes, you will need to submit an appropriate contamination assessment with your application

Land which is known to be contaminated? ☐ Yes ☒ No

Land where contamination is suspected for all or part of the site? ☐ Yes ☒ No

A proposed use that would be particularly vulnerable to the presence of contamination? ☐ Yes ☒ No

15. Trees and Hedges

Are there trees or hedges on the proposed development site? ☒ Yes ☐ No

And/or: Are there trees or hedges on land adjacent to the proposed development site that could influence the development or might be important as part of the local landscape character? ☒ Yes ☐ No

If Yes to either or both of the above, you may need to provide a full Tree Survey, at the discretion of your local planning authority. If a Tree Survey is required, this and the accompanying plan should be submitted alongside your application. Your local planning authority should make clear on its website what the survey should contain, in accordance with the current 'BS5837: Trees in relation to construction - Recommendations'.

16. Trade Effluent

Does the proposal involve the need to dispose of trade effluents or waste? ☐ Yes ☒ No

If Yes, please describe the nature, volume and means of disposal of trade effluents or waste

17. Residential Units (Including Conversion)

Does your proposal include the gain, loss or change of use of residential units?
If Yes, please complete details of the changes in the tables below:

☐ Yes☐ No**Proposed Housing**

Market Housing	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐				✓		2
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Existing Housing

Market Housing	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐				✓		2
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Social Rented	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Social Rented	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Intermediate	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Intermediate	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Key worker	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Key worker	Not known	Number of Bedrooms					Total
		1	2	3	4+	Unknown	
Houses	☐						
Flats and maisonettes	☐						
Live-work units	☐						
Cluster flats	☐						
Sheltered housing	☐						
Bedsit/studios	☐						
Unknown type	☐						
Totals (a+b+c+d+e+f+g)=							

Total proposed residential units (A+B+C+D)=

Total existing residential units (E+F+G+H)=

TOTAL NET GAIN or LOSS of RESIDENTIAL UNITS (Proposed Housing Grand Total - Existing Housing Grand Total):

18. All Types of Development: Non-residential FloorspaceDoes your proposal involve the loss, gain or change of use of non-residential floorspace? ☐ Yes ☐ No

If you have answered Yes to the question above please add details in the following table:

Use class/type of use	Not applicable	Existing gross internal floorspace (square metres)	Gross internal floorspace to be lost by change of use or demolition (square metres)	Total gross internal floorspace proposed (including change of use)(square metres)	Net additional gross internal floorspace following development (square metres)
A1 Shops	☐				
Net tradable area:	☐				
A2 Financial and professional services	☐				
A3 Restaurants and cafes	☐				
A4 Drinking establishments	☐				
A5 Hot food takeaways	☐				
B1 (a) Office (other than A2)	☐				
B1 (b) Research and development	☐				
B1 (c) Light industrial	☐				
B2 General industrial	☐				
B8 Storage or distribution	☐				
C1 Hotels and halls of residence	☐				
C2 Residential institutions	☐				
D1 Non-residential institutions	☐				
D2 Assembly and leisure	☐				
OTHER	☐				
Please Specify	☐				
Total					

In addition, for hotels, residential institutions and hostels, please additionally indicate the loss or gain of rooms

Use class	Type of use	Not applicable	Existing rooms to be lost by change of use or demolition	Total rooms proposed (including changes of use)	Net additional rooms
C1	Hotels	☐			
C2	Residential Institutions	☐			
OTHER		☐			
Please Specify		☐			

19. Employment

Please complete the following information regarding employees:

	Full-time	Part-time	Total full-time equivalent
Existing employees			
Proposed employees			

20. Hours of Opening

Please state the hours of opening for each non-residential use proposed:

Use	Monday to Friday	Saturday	Sunday and Bank Holidays	Not known

21. Site AreaPlease state the site area in hectares (ha)

22. Industrial or Commercial Processes and Machinery

Please describe the activities and processes which would be carried out on the site and the end products including plant, ventilation or air conditioning. Please include the type of machinery which may be installed on site:

Is the proposal a waste management development? ☐ Yes ☐ No

If the answer is Yes, please complete the following table:

	Not applicable	The total capacity of the void in cubic metres, including engineering surcharge and making no allowance for cover or restoration material (or tonnes if solid waste or litres if liquid waste)	Maximum annual operational throughput in tonnes (or litres if liquid waste)
Inert landfill	☐		
Non-hazardous landfill	☐		
Hazardous landfill	☐		
Energy from waste incineration	☐		
Other incineration	☐		
Landfill gas generation plant	☐		
Pyrolysis/gasification	☐		
Metal recycling site	☐		
Transfer stations	☐		
Material recovery/recycling facilities (MRFs)	☐		
Household civic amenity sites	☐		
Open windrow composting	☐		
In-vessel composting	☐		
Anaerobic digestion	☐		
Any combined mechanical, biological and/or thermal treatment (MBT)	☐		
Sewage treatment works	☐		
Other treatment	☐		
Recycling facilities construction, demolition and excavation waste	☐		
Storage of waste	☐		
Other waste management	☐		
Other developments	☐		

Please provide the maximum annual operational throughput of the following waste streams:

Municipal	
Construction, demolition and excavation	
Commercial and industrial	
Hazardous	

If this is a landfill application you will need to provide further information before your application can be determined. Your waste planning authority should make clear what information it requires on its website.

23. Hazardous Substances

Does the proposal involve the use or storage of any of the following materials in the quantities stated below? ☐ Yes ☐ No ☐ Not applicable

If Yes, please provide the amount of each substance that is involved:

Acrylonitrile (tonnes)		Ethylene oxide (tonnes)		Phosgene (tonnes)	
Ammonia (tonnes)		Hydrogen cyanide (tonnes)		Sulphur dioxide (tonnes)	
Bromine (tonnes)		Liquid oxygen (tonnes)		Flour (tonnes)	
Chlorine (tonnes)		Liquid petroleum gas (tonnes)		Refined white sugar (tonnes)	

Other:

Other:

Amount (tonnes):

Amount (tonnes):

24. Ownership Certificates

One Certificate A, B, C, or D, must be completed, together with the Agricultural Holdings Certificate with this application form

CERTIFICATE OF OWNERSHIP - CERTIFICATE A

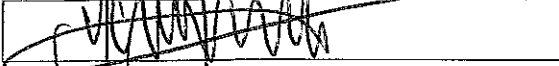
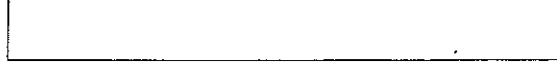
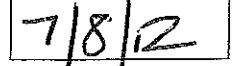
Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12

I certify/ The applicant certifies that on the day 21 days before the date of this application nobody except myself/ the applicant was the owner (*owner is a person with a freehold interest or leasehold interest with at least 7 years left to run*) of any part of the land or building to which the application relates

Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):




CERTIFICATE OF OWNERSHIP - CERTIFICATE B

Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12

I certify/ The applicant certifies that I have/ the applicant has given the requisite notice to everyone else (as listed below) who, on the day 21 days before the date of this application, was the owner (*owner is a person with a freehold interest or leasehold interest with at least 7 years left to run*) of any part of the land or building to which this application relates

Name of Owner	Address	Date Notice Served

Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):



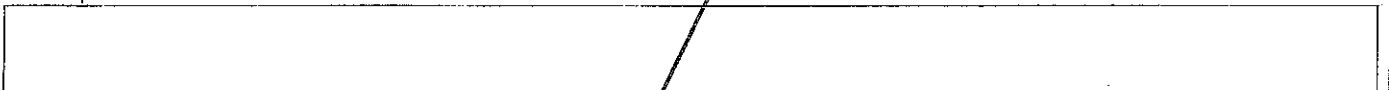

CERTIFICATE OF OWNERSHIP - CERTIFICATE C

Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12

I certify/ The applicant certifies that:

- Neither Certificate A or B can be issued for this application
- All reasonable steps have been taken to find out the names and addresses of the other owners (*owner is a person with a freehold interest or leasehold interest with at least 7 years left to run*) of the land or building, or of a part of it, but I have/ the applicant has been unable to do so

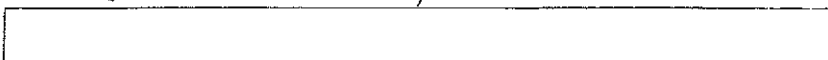
The steps taken were:



Name of Owner	Address	Date Notice Served

Notice of the application has been published in the following newspaper (circulating in the area where the land is situated):

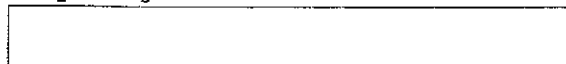
On the following date (which must not be earlier than 21 days before the date of the application):




Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):


24. Ownership Certificates (continued)**CERTIFICATE OF OWNERSHIP - CERTIFICATE D****Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12**

I certify/ The applicant certifies that:

- Certificate A cannot be issued for this application
- All reasonable steps have been taken to find out the names and addresses of everyone else who, on the day 21 days before the date of this application, was the owner (*owner is a person with a freehold interest or leasehold interest with at least 7 years left to run*) of any part of the land to which this application relates, but I have/ the applicant has been unable to do so

The steps taken were:

--

Notice of the application has been published in the following newspaper (circulating in the area where the land is situated):

--

On the following date (which must not be earlier than 21 days before the date of the application):

--

Signed - Applicant:

--

Or signed - Agent:

--

Date (DD/MM/YYYY):

--

25. Agricultural Land Declaration**AGRICULTURAL LAND DECLARATION****Town and Country Planning (Development Management Procedure) (England) Order 2010 Certificate under Article 12**

Agricultural Land Declaration - You Must Complete Either A or B

(A) None of the land to which the application relates is, or is part of, an agricultural holding

Signed - Applicant:

--

Or signed - Agent:

--

Date (DD/MM/YYYY):

7/8/12

(B) I have/ The applicant has given the requisite notice to every person other than myself/ the applicant who, on the day 21 days before the date of this application, was a tenant of an agricultural holding on all or part of the land to which this application relates, as listed below:

Name of Tenant	Address	Date Notice Served

Signed - Applicant:

--

Or signed - Agent:

--

Date (DD/MM/YYYY):

--

26. Planning Application Requirements - Checklist

Please read the following checklist to make sure you have sent all the information in support of your proposal. Failure to submit all information required will result in your application being deemed invalid. It will not be considered valid until all information required by the Local Planning Authority has been submitted.

The original and 3 copies of a completed and dated application form:



The correct fee:



The original and 3 copies of the plan which identifies the land to which the application relates drawn to an identified scale and showing the direction of North:



The original and 3 copies of a design and access statement, if required (see help text and guidance notes for details):



The original and 3 copies of other plans and drawings or information necessary to describe the subject of the application:



The original and 3 copies of the completed, dated Ownership Certificate (A, B, C, or D - as applicable):



The original and 3 copies of the completed, dated Article 12 Certificate (Agricultural Holdings):



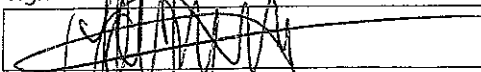
27. Declaration

I/we hereby apply for planning permission/consent as described in this form and the accompanying plans/drawings and additional information

Signed - Applicant:

Or signed - Agent:

Date (DD/MM/YYYY):



7/8/12

(date cannot be pre-application)

28. Applicant Contact Details

Telephone numbers

Country code: National number: Extension number:





Country code: Mobile number (optional):

Country code: Fax number (optional):

Email address (optional):

29. Agent Contact Details

Telephone numbers

Country code: National number: Extension number:

Country code: Mobile number (optional):

Country code: Fax number (optional):

Email address (optional):

30. Site Visit

Can the site be seen from a public road, public footpath, bridleway or other public land?

☒ Yes

☐ No

If the planning authority needs to make an appointment to carry out a site visit, whom should they contact? (Please select only one)

☐ Agent

☒ Applicant

☐ Other (if different from the agent/applicant's details)

If Other has been selected, please provide:

Contact name:

JOHN SEAGIER

Telephone number:



Email address:



Land at Stalwart Lodge - Primrose Road - Clitheroe
Erection of 8No detached dwellings

Planning Layout - Services

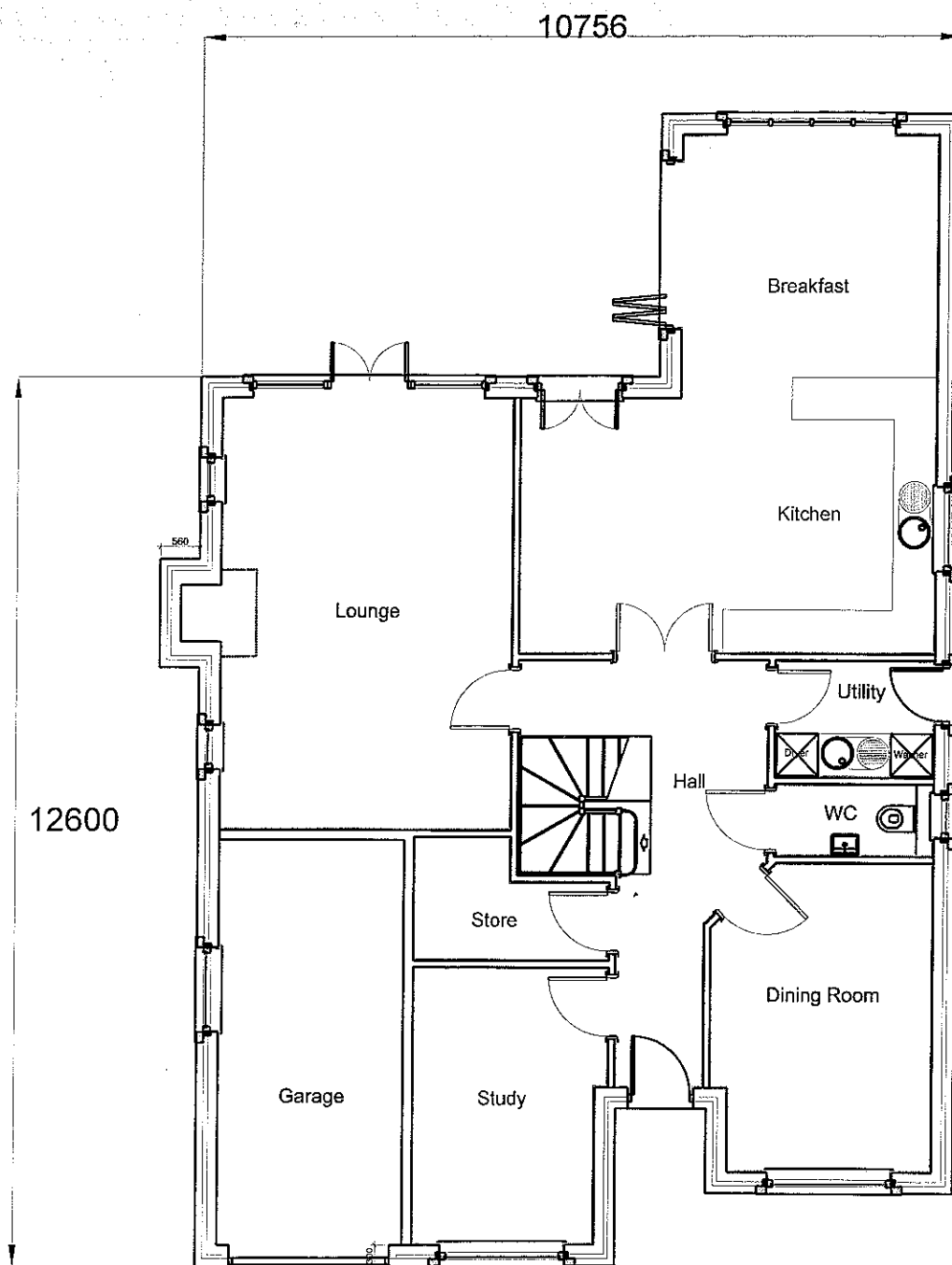
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Apr 10

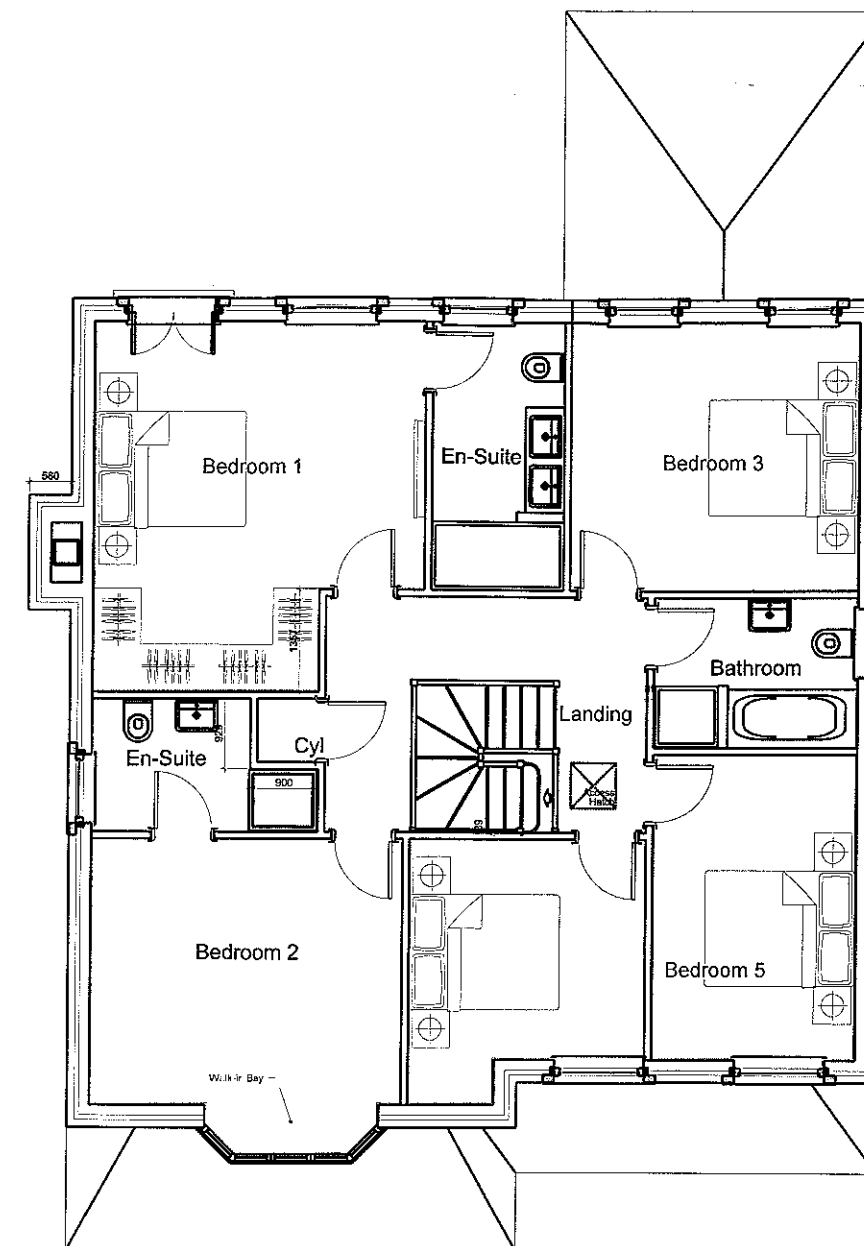
BD/SL/001 C

Beck Developments Ltd
Challenge House, Challenge Way, Greenbank Business Park,
BLACKBURN, Lancashire. BB1 5QB
telephone 01254 685787 fax 01254 685742
www.beckhomesdevelopments.co.uk

beck
developments



Ground floor plan



First floor plan

320120752P

Rev B - Aug 12 - Internal floor plans amended
Rev A - Apr 11 - Internal floor plans amended

Land at Stalwart Lodge - Primrose Rd - Clitheroe
Plot 4

Floor plans

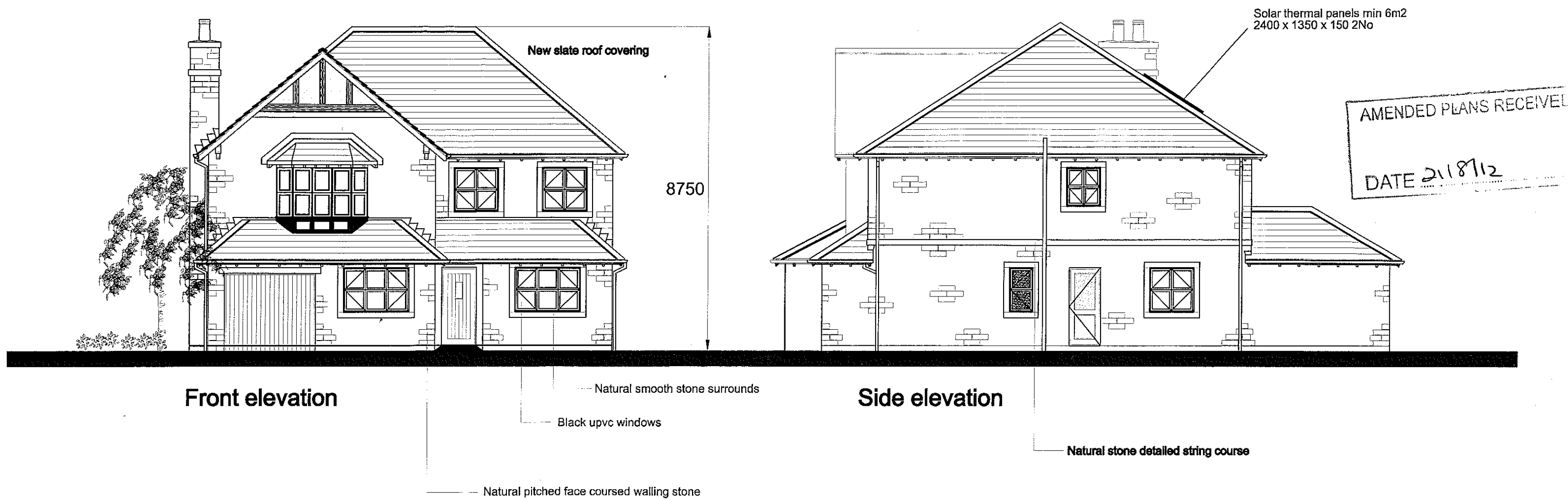
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Apr 10

BD/SL/0100b

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320120752P

Rev C - Aug 12 - Elevations amended to suit new floor plans
 Rev B - May 11 - Solar thermal panels added
 Rev A - Apr 11 - Elevations amended to suit revised floor plans

Land at Stalwart Lodge - Primrose Rd - Clitheroe
 Plot 4

Elevations 1

1:100

Apr 10

BD/SL/0101 c

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 BLACKBURN, Lancashire. BB1 5QB
 telephone 01254 685787 fax 01254 685742
 www.beckhomesdevelopments.co.uk


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 developments

AMENDED PLANS RECEIVED

DATE 21/8/12

New slate roof covering

Solar thermal panels min 6m2
2400 x 1350 x 150 2No



Rear elevation



Side elevation

8157

Natural pitched face coursed walling stone

320120752P

Rev C - Aug 12 - Elevations amended to suit new floor plans
Rev B - May 11 - Solar thermal panels added
Rev A - Apr 11 - Elevations amended to suit revised floor plans

Land at Stalwart Lodge - Primrose Rd - Clitheroe
Plot 4

Elevations 2

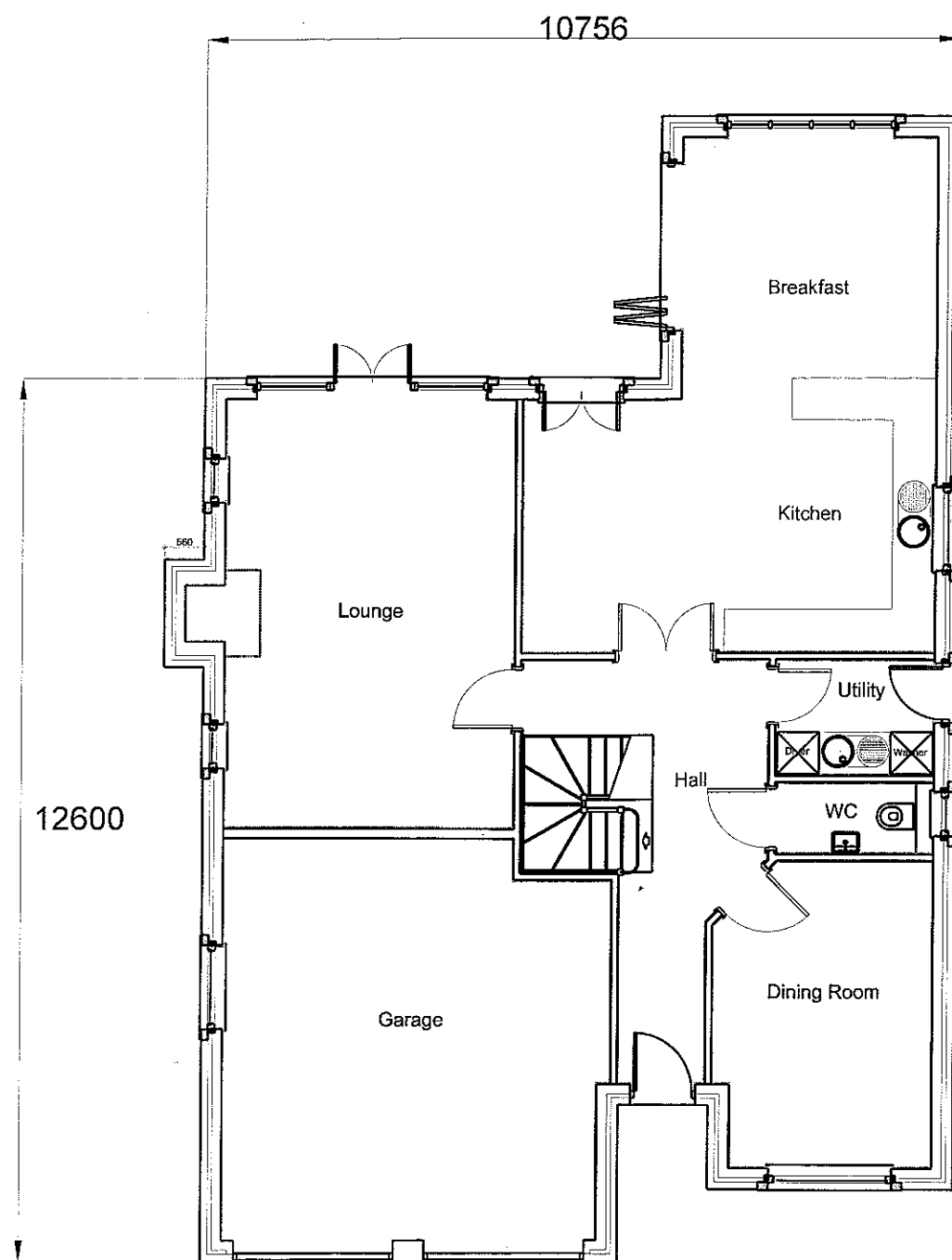
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Apr 10

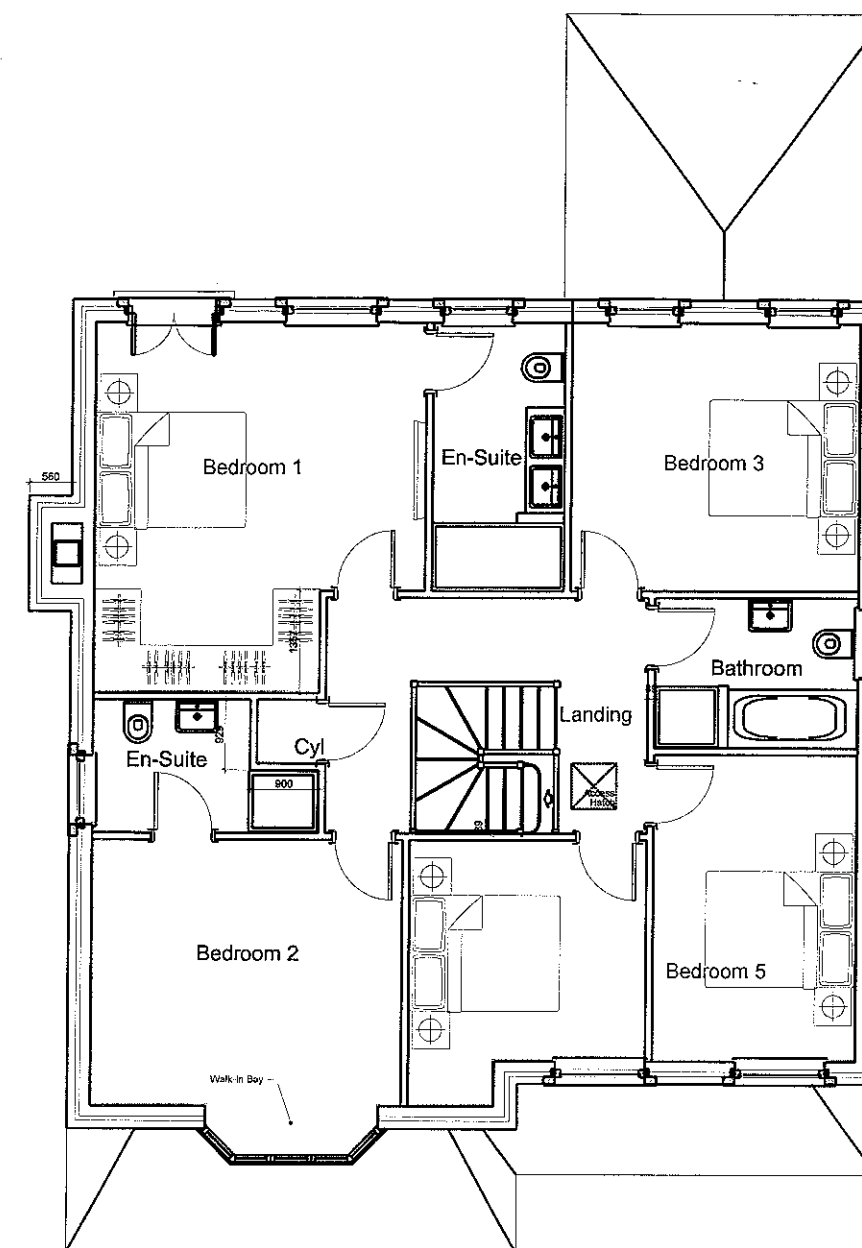
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telephone 01254 685787 fax 01254 685742
www.beckhomesdevelopments.co.uk





Ground floor plan



First floor plan

320120752P

Rev B - Aug 12 - Internal floor plans amended

Rev A - Apr 11 - Internal floor plans amended

Land at Stalwart Lodge - Primrose Rd - Clitheroe
Plot 7

Floor plans

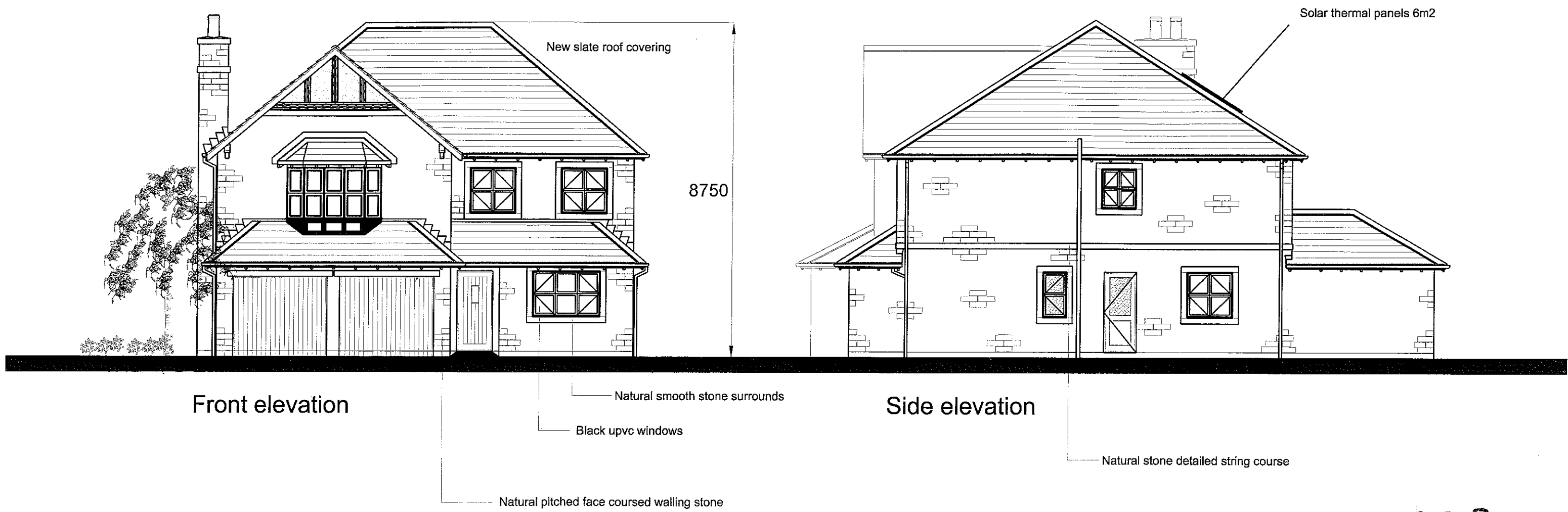
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Apr 10

BD/SL/011 b

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beck
developments



320120752P

Rev C - Aug 12 - Elevations amended to suit new floor plans
 Rev B - May 11 - Solar thermal panels added
 Rev A - Apr 11 - Elevations amended to suit revised floor plans

Land at Stalwart Lodge - Primrose Rd - Clitheroe Plots 7				Beck Developments Ltd Challenge House, Challenge Way, Greenbank Business Park, BLACKBURN, Lancashire. BB1 5QB telephone 01254 685787 fax 01254 685742 www.beckhomesdevelopments.co.uk		 beck developments
Elevations 1	1:100	Apr 10	BD/SL/012 c			

New slate roof covering

Solar thermal panels 6m²



Rear elevation



Side elevation

8157

Natural pitched face coursed walling stone

320120752P

Rev C - Aug 12 - Elevations amended to suit new floor plans
 Rev B - May 11 - Solar thermal panels added
 Rev A - Apr 11 - Elevations amended to suit revised floor plan

Land at Stalwart Lodge - Primrose Rd - Clitheroe
 Plots 4 and 7

Elevations 2

1:100

Apr 10

BD/SL/013 c

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 developments

Energy Statement

Development on land at Stalwart Lodge
Primrose Road, Clitheroe, Lancashire, BB7 1BT

Prepared on behalf of
Beck Developments Limited

by



www.proporteco.co.uk

Contents

Contents	2
Summary	3
1. Introduction	5
2. Planning requirements	5
3. Calculation methodology	6
4. Energy demand and efficiency	7
5. Consideration of Combined Heat and Power and Trigeneration systems.	10
6. Consideration of Renewable Energy Technologies	11
7. Renewable Energy Options — Summary	15
8. References	19

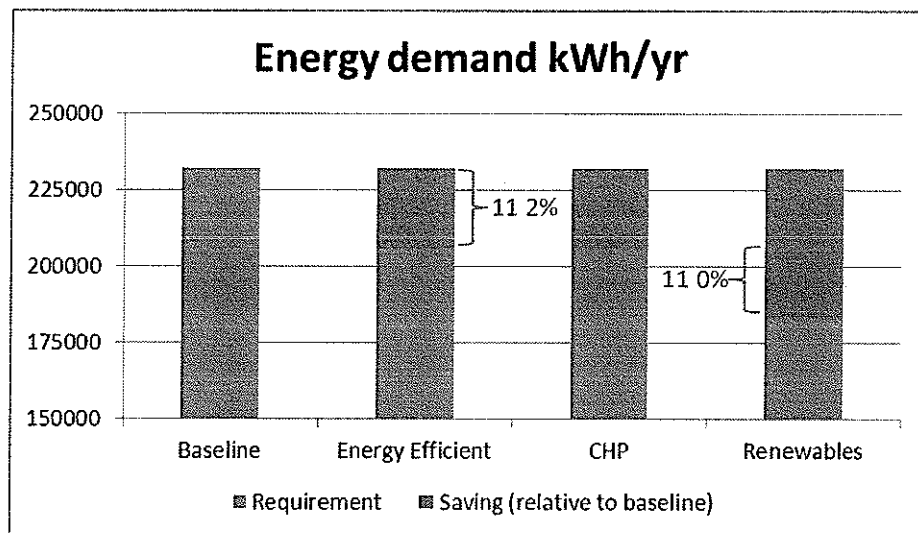
Summary

The Energy Statement relates to Planning Application 3/2010/0288 for the development of the former Stalwart reservoir basin for the construction of 8no dwellings at Stalwart Road, Clitheroe, Lancashire, BB7 1BT.

The Energy Statement sets out to meet the requirements of national, regional and local policies with regard to energy conservation in dwellings, reductions in global climate change gas emissions and the use of renewable technologies to meet energy demand. In particular, it meets the requirements of condition 14. of the planning permission granted 08 October 2010 regarding the development of a scheme identifying how a minimum of 10% of the energy requirements of the development will be achieved by renewable energy production

Energy demand summary

	Energy demand (kWh/yr)	Energy demand savings (%)
Proposed baseline scheme	231,993	
Proposed Scheme after energy efficiency measures	206,108	11.2
Proposed scheme after CHP savings	n/a	n/a
Proposed scheme after renewables savings	183,426	11.0



Energy efficient design measures

The total energy demand has been calculated taking full account of energy demands for space heating and hot water, and electricity for pumps, fans, lights and cooking and appliances. The baseline was determined by using the typical orientation and the use of building elements (walls, windows etc.) with U-values consistent with achieving compliance with Approved Document Part L1A: 2006. These were on average as follows:

Element	U-value W/m ² K	
	Baseline	Energy efficient
Heat loss floors:	0.25	0.2
External walls:	0.35	0.29-0.31
Roofs:	0.16	0.14-0.21
Windows (area weighted average):	2.0	1.9

All other issues were generally assumed as per 2006 Part L1A requirements — i.e. greater than 30% low energy light fittings, air permeability of 10 m³/(h m²) at 50Pa, natural ventilation with intermittent extract fans and 10% of heating demand from electrical secondary heating,

Having established a baseline the calculations were repeated using the actual proposed U-values and the actual proposed proportion of dedicated low energy light fittings (100%) along with other improvements such as thermal bridging to "accredited construction details" ($\psi=0.08$). The increase in the number of low energy light fittings actually increases the space heating demand slightly as the incidental gains from the lighting are lower

Proposed heating system

For the energy efficient scenario a mains gas condensing boiler with seasonal efficiency (SEDBUK) of greater than 90% was chosen to provide space and water heating

Choice and impact of renewable energy technology.

All possible renewable energy technologies were evaluated in relation to the site, starting with Combined Heat and Power. Many of the technologies were excluded because of the scale of the development and the restrictions of the site. Two technologies were identified as being suitable for installation including solar thermal water heating and air source heat pumps. Solar thermal water heating was selected as being the most suitable solution, providing an 11.0% reduction in energy demand across the development as a whole.

1. Introduction

The Energy Statement relates to Planning Application 3/2010/0288 for the development of the former Stalwart reservoir basin for the construction of 8no. dwellings at Stalwart Road, Clitheroe, Lancashire, BB7 1BT

The Energy Statement sets out to meet the requirements of national, regional and local policies with regard to energy conservation in dwellings, reductions in global climate change gas emissions and the use of renewable technologies to meet energy demand. In particular, it meets the requirements of condition 14. of the planning permission granted 08 October 2010 stating that *"Prior to commencement of development a scheme identifying how a minimum of 10% of the energy requirements generated by the development will be achieved by renewable energy production methods shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall then be provided in accordance with the approved details prior to occupation of development and thereafter retained."*

The requirement for new housing developments to obtain a proportion of their energy needs from on-site renewable energy sources is now a well established feature of Planning Policy. This Energy Statement sets out the applicable policies on energy, and the methodology for and the results from an energy demand assessment. It contains details of the energy efficiency measures being incorporated within the new development and shows that these will reduce the total energy demand by 11.2%. It includes an overview of possible renewable energy technologies and identifies the technologies most suitable for this development and reasons why other technologies have had to be excluded. Finally, it shows that the selected renewable energy technology will provide at least the 10% required by the local planning authority as part of the planning permission.

In presenting this information this Energy Statement demonstrates that the proposed development will fully satisfy the applicable planning policies relating to energy conservation, and renewable energy

2. Planning requirements

2.1 National Policy

2.1.1 KYOTO PROTOCOL

The Kyoto protocol is an international treaty following the United Nations Framework Convention on Climate Change (UNFCCC) set out in 1992, which set targets for the reduction in emissions of greenhouse gases. The UK government signed the treaty in 1997, which to date 181 additional countries have also signed. Following the signing of this protocol the European Union (EU) and UK government have put in place measures to reduce the amount of energy consumed by new and existing buildings and therefore to reduce the amount of carbon dioxide emitted. These have included changes to the building regulations, national and regional planning policy documents relating to energy efficient development and the use of renewable energy.

2.1.2 BUILDING REGULATIONS – PART L1A 2006

This section of the building regulations deals with the conservation of energy in new domestic dwellings buildings; specifically the energy used for space heating/cooling, water heating, cooking, lighting and appliances. The methodology for the assessment of such has been adopted from the Building Research Establishment's (BRE) Domestic Energy Model (BREDEM-12) energy assessment method.

Both of these methods require the calculation of a target emissions rate (TER), which assumes standard or typical building components and the calculation of the buildings actual emissions (DER for SAP). It is expected that the buildings actual emissions will be lower than the target emission rate.

2.1.3 PLANNING POLICY STATEMENT 22: RENEWABLE ENERGY (ODPM, 2004)

Planning Policy Statement 22 covers the consideration of issues relating to renewable energy technologies and their application to new developments. Technical advice and guidance on the various individual renewable technologies and examples of good practice within development plans and developments are also available. Requirements include:

- (i) Renewable energy developments should be capable of being accommodated throughout England in locations where the technology is viable and environmental, economic, and social impacts can be addressed satisfactorily*
- (ii) The wider environmental and economic benefits of all proposals for renewable energy projects, whatever their scale, are material considerations that should be given significant weight in determining whether proposals should be granted planning permission*
- (iii) Development proposals should demonstrate any environmental, economic and social benefits as well as how any environmental and social impacts have been minimized through careful consideration of location, scale, design and other measures*

2.2 Local Policy

2.2.1 POLICY ENV24 OF THE RIBBLE VALLEY DISTRICTWIDE LOCAL PLAN

This details the Borough's support of renewable energy schemes and their potential to contribute to energy needs in a significant and sustainable way. It also acknowledges that renewable energy sources offer the hope of increasing diversity and security of supply, and of reducing harmful emissions to the environment.

2.2.2 POLICY G1 OF THE RIBBLE VALLEY DISTRICTWIDE LOCAL PLAN

This policy is referred to in condition 14 of the Planning Permission granted for the development and addresses the need for the scheme to achieve a minimum of 10% of energy requirements from renewable energy.

3. Calculation methodology

This Energy Statement takes a hierarchical approach as follows:

A. Baseline.

A calculation of baseline energy demand, demonstrating the projected annual heating, cooling and electricity demand of the development.

B. Energy Efficiency.

An explanation of how total energy demand and carbon dioxide emissions will be reduced relative to the baseline energy demand through improvements to building energy efficiency standards

C. CHP/CCHP.

Proposals for the reduction of energy demand and carbon dioxide emissions from heating, cooling and electrical power, including the feasibility of Combined Heat and Power / Combined Cooling, Heating, and Power systems, and community heating systems;

D. Renewable Energy.

Details of renewable energy technologies to be incorporated in the development, demonstrating that a minimum of 10% of the energy requirements will be achieved by the use of renewable energy

The space heating, hot water and lighting energy demand was calculated using the detailed Bredem-12 method developed by the Building Research Establishment and used in the SAP2005 calculation, and referenced in the 2006 version of the Building Regulations. However, since this does not normally include certain forms of energy use: specifically electricity for appliances and cooking, these were calculated using SAP2009 Section 16 and Appendix L2 & L3. This approach means that the energy demand estimate includes all forms of energy use

The starting point was to determine the performance of the "baseline" for the dwellings using the orientation and a level of insulation and building services equipment performance consistent with the development achieving compliance with Approved Document L1A: 2006. The specific energy consumption figures for space heating, hot water and lighting were then extracted, and figures for appliances added. The calculations were then repeated using the U-values, boiler efficiency, proportion of dedicated low energy lighting, and controls proposed for the scheme by the Applicant. These results permitted the benefit of the energy efficiency measures to be determined

These "actual case" results were then used when evaluating the options for renewable energy needed and the saving in energy demand that the proposed technologies could provide. The results obtained from this analysis are presented in the following sections and summarised graphically in the Summary on Page 3

4. Energy demand and efficiency

4.1 Energy demand assessment

The total energy demand has been calculated taking full account of energy demands for space heating and hot water, and electricity for pumps, fans, lights and appliances. The baseline was determined by using the typical orientation and the use of building elements (walls, windows etc) with U-values and other reference values from SAP 2005 Table R1 and in most cases consistent with achieving compliance with Approved Document Part L1A: 2006 and are provided in Appendix 1.

Element or system	Value
External walls:	U = 0.35 W/m ² K
Heat loss floors	U = 0.25 W/m ² K
Roofs:	U = 0.16 W/m ² K
Doors & windows (area weighted average):	U = 2.0 W/m ² K
Thermal mass	Medium (TMP = 250 kJ/m ² K)
Thermal bridging	0.11 x total exposed surface area (W/K)
Ventilation	Natural with intermittent extract fans
Air permeability	10 m ³ /(h.m ²) at 50Pa
Chimneys and open flues	None
Extract fans	3
Main heating (space & water) system	Gas boiler and radiators
Boiler	SEDBUK (2005) 78%, room sealed, fan flue
Heating controls	Programmer, room thermostat, TRV's & boiler interlock Separate controls for heating and water
Secondary heating	10% (electric panel heaters)
Low energy light fittings	30%

All other elements or systems are described in Appendix 1

The specific energy consumption figures for the development as a whole (8no dwellings) were then extracted from the SAP20059 TER results. These are summarised for the development as a whole in the following table and are given in full in Appendix 2:-

Energy use	Energy (kWh/yr)
Primary space heating	113,055
Secondary space heating	9,799
Water heating	49,984
Pumps, fans etc	1,400
Lighting	12,173
Appliances and cooking	37,206
Total	231,993

4.2 Energy efficiency measures

Having established a baseline the calculations were repeated using the actual proposed U-values, along with other proposed improvements to the energy efficiency of the dwelling, in particular the fabric, as follows:

Element or system	Baseline Value	Improved value
External walls:	$U = 0.35 \text{ W/m}^2\text{K}$	$U = 0.29 - 0.31 \text{ W/m}^2\text{K}$
Heat loss floors	$U = 0.25 \text{ W/m}^2\text{K}$	$U = 0.2 \text{ W/m}^2\text{K}$
Roofs:	$U = 0.16 \text{ W/m}^2\text{K}$	$U = 0.14 - 0.21 \text{ W/m}^2\text{K}$
Windows	$U = 2.0 \text{ W/m}^2\text{K}$	$U = 1.9 \text{ W/m}^2\text{K}$
Thermal mass	Medium (TMP = 250 kJ/m ² K)	Low (TMP = 100 kJ/m ² K)
Thermal bridging (y)	0.11	0.08
Air permeability	10 m ³ /(h.m ²) at 50Pa	10 m ³ /(h.m ²) at 50Pa
Boiler	SEDBUK(2005) 78%	SEBUK(2005) 90% Condensing System boiler
Hot water system	Stored hot water, heated by boiler Separate time control for space and water heating	Stored hot water, heated by boiler Separate time control for space and water heating
Secondary space heating	10% electric (panel heaters)	Open log fire, HETAS approved 37% efficiency or greater
Low energy light fittings	30%	100%

All other elements or systems remained as per the baseline reference values (Appendix 1).

The increase in the number of low energy light fittings actually increases the space heating demand slightly as the incidental gains from the lighting are lower.

The specific energy consumption figures for the development as a whole (8no. dwellings) were then extracted from the SAP2005 DER results. Again, these are summarised for the development as a whole in the following table and are given in full in Appendix 2:-

Energy use	Baseline	After Energy Efficiency Measures	
	Energy (kWh/yr)	Energy (kWh/yr)	Energy reduction (%)
Primary space heating	113,055	82,805	
Secondary space heating	9,799	22,379	
Water heating	49,984	41,076	
Pumps, fans etc	1,400	1,400	
Lighting	12,173	12,776	
Appliances and cooking	37,206	45,582	
Site Total	231,993	206,018	11.2

As a consequence of the energy efficiency improvements the total energy demand for the development was reduced by 11.2% overall

Subsequent to the reduction in energy requirement due to energy efficiency measures the target reduction in energy requirement in accordance with the planning condition is for a 10% reduction after energy efficiency savings have been made, hence the target reduction is 20,602 kWh per year. This target is taken into consideration when evaluating each of the alternative on-site renewable energy systems to ensure the most appropriate system is used.

5. Consideration of Combined Heat and Power and Trigeneration systems

Combined Heat and Power (CHP) and Combined Cooling Heat and Power (CCHP) or Trigeneration Systems are recognised as a very desirable way of reducing energy wastage and resulting carbon dioxide emissions. While generally operating on fossil fuel, mainly natural gas, their advantage is that the waste heat normally associated with electricity generation is put to good use providing space heating and hot water. This means that the overall fuel efficiency can be increased significantly — typically to above 80% compared to 30 — 40% for grid electricity.

Generally CHP and CCHP are most suited to community heating systems particularly where there is a constant demand for heat throughout the year and therefore they are not considered to be viable on developments of less than approximately 100 units. Data to support energy and carbon saving from CHP is

still developing and 'these devices are unlikely to be appropriate for highly insulated houses with small heat losses' (ODPM, 2006).

However some systems for individual dwellings have been developed such as the Baxi Ecogen micro CHP. However the technology is new and is still proving its long term reliability. The installation may be complex and can only be carried out by British Gas & one other supplier and therefore is relatively expensive. For these reasons it is considered that micro CHP installations are not a practical option at the present time for a small development such as this.

6. Consideration of Renewable Energy Technologies

6.1 Overview of renewable energy

Renewable energy is defined as energy derived from energy flows that occur naturally and repeatedly in the environment and is contrasted with energy sources that can be depleted such as fossil fuels or uranium-238-based nuclear power.

Energy from renewable sources has been defined in Article 2 of EU Directive 2010/13/EU '*on the energy performance of buildings*' and includes wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases. For the purposes of this energy statement and the use of renewable energy on a domestic scale these can be summarised as follows:

- Decentralised energy
- Bio-fuels — combustion of solid or liquid bio-fuels to produce heat or electricity;
- Heat pumps — extraction of heat from the earth, atmosphere or water bodies;
- Hydroelectricity — use of water cycle driven flows to generate electricity;
- Photovoltaic — direct generation of electricity from sunlight;
- Solar thermal — direct heating of water for space heating or domestic hot water;
- Wind turbines — use of solar driven air movement to generate electricity;

The technologies, and their potential application to this site are discussed in more detail in the following sections. However, one further pertinent point must be made. The reason for adopting renewable energy technologies is to reduce greenhouse gas emissions — mainly carbon dioxide, and none of the technologies are wholly "zero carbon". This is because, when the whole life cycle is taken into account some energy has to be put into every system to manufacture and maintain the equipment (which has a finite life) or to operate the equipment, and generally at present this energy is derived from non-renewable sources. Examples include the energy needed to refine and process the silicon used to manufacture photovoltaic panels, the diesel fuel used to transport wood pellets to the development and to power the wood processing machinery, and where applicable to bio-fuels, the energy used to manufacture the fertilizers needed to maintain soil fertility.

Finally, due to the dynamic and innovative nature of the renewable energy technology industry even apparently similar products can differ in vital practical details which means that detailed design of installations

must be undertaken by experts, often working closely with the product manufacturers, as virtually no two products are identical or interchangeable.

The following sections contain a summary of each possibly-applicable technology, and a comparison of the advantages and disadvantages of technologies relevant to this development

6.2 Decentralised energy

In addition to addressing the well understood and widely accepted planning policy requirement to install systems that will deliver a proportion of the development's energy needs from renewable sources, a further consideration is the availability of decentralised energy. If it is feasible, new developments should incorporate community energy generating schemes so that future developments can be connected or where there are existing networks, the feasibility of connecting the subject development should be investigated. However in this case the development is too small to feasibly construct a new community heating scheme and at present, there is no such network available locally.

6.3 Bio-fuels

Key planning and design issues include the building space and organisation to accommodate and operate the plant. The plant would be floor standing, requiring floor space of potentially 2000x1500mm for access and maintenance. Facilities are required for ash disposal and sufficient fuel storage must be provided along with loading access for the fuel to be safely and efficiently delivered and stored. It is also often the case that wood fuel costs more than gas reducing the economic benefit of such a scheme particularly in small dwellings.

This option is considered to be unsuitable due to the availability of mains gas in the area and restrictions of the site and therefore limited space available for any plant and storage space.

6.4 Heat pumps

Heat pumps collect low temperature heat from renewable sources and "concentrate" it to a usable temperature. Fossil fuel based (grid) electricity is generally required to operate the pumps and the renewable component of the output is therefore by convention taken as the difference between the output energy and the input energy. A typical heat pump will deliver 3 kWh of heat energy for every 1 kWh of input energy or in other words a 300% efficiency. A heat pump operating in this way would therefore be deemed to have delivered 2 kWh of renewable energy.

Ground source heat pumps

There are two types of system a closed loop and open loop system. The first circulates anti-freeze through plastic pipe horizontally or vertically, the second uses ground water. Generally they work best where there is a constant heating or cooling demand or the property is off mains gas. In this case the properties have access to mains gas and do not have a constant energy demand. Due to the restrictions of the site (size and ecological/environmental considerations) only a vertical (borehole) closed loop system can be considered with the most likely practical siting of the boreholes under the flats themselves and the foundations would have to accommodate this as part of their design. Typically boreholes are around 15-120m deep depending on the heat demand and the ground conditions. It is estimated that approximately 10-12 boreholes might be required with a minimum separation of at least 5m, which could be accommodated on the site.

However the viability of a heat pump is dependent on the site ground conditions and geology and this requires a geological desk study and trial boreholes to obtain the necessary information. An environmental impact assessment is generally not required for a closed loop system. There is no visual impact to consider as the

system is hidden from view. There would be a need for space to locate any ancillary equipment and for the establishment of a communal heat management scheme with individual metering to individual properties.

The cost of a suitably sized GSHP system £1000/ kW depending on ground conditions.

Air source heat pumps (including exhaust air heat pumps)

Assuming a coefficient of performance of 2.5 for a heat pump system, (default value as defined in SAP2005), to provide 123,881 kWh of primary space and water heating would require the equivalent of only 49,552 kWh of energy demand from the heat pump system – a reduction of 74,329 kWh. This equates to a 60% overall reduction in total energy demand. To achieve a 10% reduction for the development overall (20,602 kWh) would only require ASHP to be installed in three of the eight dwellings. However, this would complicate fitting out process on site as different systems would be installed in different dwellings. In addition consideration would need to be given to the air source heat pump units as there is a potential for noise disturbance of neighbouring dwellings. Whilst the installation of air source heat pumps is a feasible option it is not considered to be the most suitable solution.

6.5 Hydroelectricity

There is no source of water in the locality which could be utilised as an energy source.

6.6 Photovoltaic

Photovoltaic (PV) systems use areas of semiconductor material that produce electricity when exposed to light. They are connected to the building electricity supply via an inverter which converts the output to a form which is compatible with the mains electricity voltage and frequency. This also allows excess electricity to be exported at times when the actual demand from the dwellings is less than that being produced by the PV system. This ensures that all the electricity produced is used and achieves a reduction in carbon dioxide emissions. For all purposes relating to planning, the exported electricity is by convention treated as if it were used on site.

The output of photovoltaic systems is generally specified as kW peak, or kWp with each 1kWp of system expected to produce an average 800 kWh of electricity per year, although this may be reduced depending on location, orientation and over shading. The area required to produce an output of 1 kWp varies with technology utilized as shown in the table below:

Type	Efficiency (%)	Area for 1kWp (m ²)	Development requirement (kWh)	Area required for 10% energy reduction (m ² / dwelling)
Amorphous (thin film)	4-6	15	20,602	48
Poly-crystalline	12-14	7.5		24
Mono-crystalline	13-15	7		23
Hybrid	17-19	6.5		21

Because the availability of sunlight, to produce electricity, will generally not align with demand, it is normal for the system to be connected to the electricity grid and excess production exported. The introduction of the feed-in-tariff has improved the economics of solar PV systems and payback periods can now be less than 15 years.

For the dwellings in proposed development to have sufficient PV to provide 10% of the total energy requirement would require an area of PV of more than 20m² per dwelling. With a cost of approx £1000 per module (1 25m²) the cost per dwelling would be particularly high. In addition the roof area of some dwellings is limited. Although there are no direct environmental consequences the installation can have a visual impact that may require consideration.

6.7 Solar thermal panels

A 10% reduction in the total energy requirements is equal to 20,602 kWh. As the total energy requirement for water heating is 41,076 kWh it means that a solar thermal system would need to provide 50% of the water heating demand – something which a typical system could readily supply. A typical solar thermal (hot water) panel is capable of providing up to 400 kWh of useable hot water per year for every square metre of panel installed and provides 50-60% of the annual hot water requirement. Evacuated tube systems tend to be more efficient than flat plate collectors particularly in winter but also have a greater visual impact. Although this equates to approximately 50 m² of solar panels this could be accommodated on the roofs of all dwellings. The maximum panel area that can generally be used on a typical dwelling is 6 m² to avoid excessive summer panel temperatures or the need for an over-sized hot water cylinder. A solar thermal system could be easily integrated with the proposed gas boiler system using a twin coil solar water cylinder and the panels mounted on the south-west facing front roofs of the dwelling. Overall it is considered that a solar thermal system would provide the most cost-effective solution to the need to provide 10% of the energy requirement for the development.

6.8 Wind turbines

Micro wind turbines produce electricity and can be grid-connected in the same way as photovoltaic panels. Although wind turbines are one of the most cost effective renewable energy technologies, for smaller turbines the capital cost is relatively high compared to the amount of power generated. Adjacent trees and buildings

create turbulence and the location affects wind speed and to be effective an average wind speed of no less than 5m/s is required. From the Energy Saving Trust's wind calculation tool, the predicted average wind speed at the development site is less than 5 m/s. The urban location and the occurrence of wind turbulence would reduce turbine efficiency further. In addition noise and vibration from roof mounted turbines can prove unacceptable and wind turbines are less likely to meet with the approval of local residents and planners.

For these reasons wind turbines are not considered suitable for this development.

7. Renewable Energy Options — Summary

A summary of the technology options is provided in the table below. Two technologies are suitable for installation at the development site to provide 10% of the energy demand – air source heat pumps and solar thermal water heating, but the latter is considered to be the most suitable because of its simplicity, cost effectiveness and absence of potential noise disturbance that exists with air source heat pumps.

Technology	Criteria	Assessment	Overall suitability
Biofuels	Year-round heat demand Established supply chain Sufficient space for delivery of fuel Sufficient space for storage of fuel Sufficient space for boiler and auxiliary equipment Can the flue be designed to meet planning authority requirements	Development is residential with seasonal and daily variations in heat demand. Limited space on site for location of plant room and storage of fuel. Would require communal heating scheme with associated management mechanisms and individual dwelling metering. Potential issues with flue emissions in smoke-free zone.	Not suitable
Ground Source Heat Pump	Sufficient space for horizontal coil or separation of multiple boreholes Ground suitable for vertical drilling and avoidance of obstacles Sufficient space for GSHP and auxiliary equipment	Closed loop indirect borehole system possible but insufficient space for horizontal coil. Would require communal heating scheme with associated management mechanisms and individual dwelling metering. Unknown ground conditions for vertical system and potential environmental impact from a horizontal loop system	Not suitable
Air Source Heat Pump	Sufficient space for ASHP and auxiliary equipment Sufficient distance between installation and neighbours to avoid noise disturbance	Units mounted on the outside of three dwellings but there is a potential noise issue. Complexity of different systems in different dwellings across the development.	May be suitable
Hydroelectricity	Nearby watercourse with sufficient head Permission available for access to watercourse Climate change modelling confirms longevity of watercourse (25 yrs)	No suitable water course nearby	Not suitable
Solar PV	Suitable roof orientation, lack of shading Sufficient roof space	Roof area is too restricted.	Not suitable

Technology	Criteria	Assessment	Overall suitability
Solar thermal	Suitable roof orientation, lack of shading. Sufficient roof space. Year-round hot water demand. Compatibility with proposed heating system. Sufficient space for communal or individual hot water storage	Sufficient roof space pitch and orientation. Ease of integration with gas boiler system. Evacuated tubes more efficient but greater visual impact compared with flat plate.	Suitable
Wind turbines	Sufficient wind speed. Area free from obstructions / causes of turbulence. Sufficient open space for installation. Sufficient distance between installation and neighbours to avoid noise disturbance	Urban location with insufficient wind speed and turbulence from surrounding buildings and trees.	Not suitable

7.1 Renewable energy proposals

Taking due account of the issues associated with the available types of renewable energy technology as set out in Section 6, it is proposed to solar thermal hot water heating in each of the individual dwellings. The following table summarises the ions from each of the proposed technologies

Technology	Energy demand (kWh/yr)			Reduction from renewables (%)
	Baseline	After Energy Efficiency Measures	With renewables installed*	
Solar thermal water heating	231,993	206,018	183,426	11.0

*based on providing 55% of annual hot water requirement

7.2 Conclusions

The foregoing projected results show that this development proposal meets the applicable planning policies that relate to energy saving and renewable energy

The baseline annual energy demand for the proposed development is 231,933 kWh.

Improvements to the building fabric and other passive measures resulted in a 11.2% reduction in energy demand to 206,018 kWh/yr.

Then, using this reduced figure as a reference, the most effective option for reducing energy demand from the development is the installation of solar thermal water heating, providing a 11% reduction in total energy demand

The development proposals therefore fully meet the requirements of planning permission condition 14 and Policies ENV24 and G1 of the Ribble Valley Districtwide Local Plan.

8. References

- Approved Document L1A: Conservation of fuel and power (New dwellings) , 2006.
- Energy Savings Trust, www.energysavingtrust.org.uk, 2011.
- Kyoto Protocol, UNFCCC, 1992
- Planning Policy Statement 1: Delivering Sustainable Development, ODPM, 2005
- Planning Policy Statement 22: Renewable Energy, ODPM, 2004
- The Government's Standard Assessment Procedure for Energy Rating of Dwellings, 2005 Edition. DEFRA, 2005
- Ribble Valley Districtwide Local Plan.
- Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings. Official Journal of the European union 18 6 2010

Appendix 1

Reference values used in connection with establishing a target CO₂ emissions rate (TER) and used in the Energy Statement baseline calculation.

Element or system	Value
Size and shape	Same as actual dwelling
Opening areas (windows & doors)	25% of total floor area (or, if total exposed façade area is less than 25% of the total floor area the total exposed façade area) The above includes one opaque door of area 1.85 m ² , any other doors are fully glazed All glazing treated as windows (i.e. no roof windows)
External walls	$U = 0.35 \text{ W/m}^2\text{K}$
Party walls	$U = 0 \text{ W/m}^2\text{K}$
Floors	$U = 0.25 \text{ W/m}^2\text{K}$
Roofs	$U = 0.16 \text{ W/m}^2\text{K}$
Opaque door	$U = 2.0 \text{ W/m}^2\text{K}$
Windows and glazed doors	$U = 2.0 \text{ W/m}^2\text{K}$ Double glazed, low-E hard coat, Frame factor 0.7, Solar energy transmittance 0.72, Light transmittance 0.80
Thermal mass	Medium (TMP = 250 kJ/m ² K)
Living area fraction	Same as actual dwelling
Shading and orientation	All glazing orientated E/W; average overshading
Number of sheltered sides	2
Allowance for thermal bridging	0.11 x total exposed surface area (W/K)
Ventilation system	Natural ventilation with intermittent extract fans
Air permeability	10 m ³ /h m ² at 50 Pa
Chimneys	None
Open flues	None
Extract fans	3 for dwellings with floor area greater than 80 m ² , 2 for smaller dwellings
Main heating fuel (space and water)	Mains gas
Heating system	Boiler and radiators, water pump in heated space
Boiler	SEDBUK(2005) 78%, room-sealed fanned flue, on/off burner control
Heating system controls	Programmer room thermostat and TRVs boiler interlock

Hot water system	Stored hot water heated by boiler, separate time control for space and water heating
Hot water cylinder	150 litre cylinder insulated with 35 mm of factory applied foam
Primary water heating loss	Primary pipework not insulated cylinder temperature controlled by thermostat
Water use limited to 125 L/person/day	No
Secondary space heating	10% electric (panel heaters)
Low energy light fittings	30% of fixed outlets.

Appendix 2

Individual dwelling values

Baseline

Flat	Primary heating	Secondary heating	Hot water	Fans, pumps etc.	Lights	Appliances & cooking	Total	
	kWh/yr	kWh/yr	kWh/yr	kWh/yr	kWh/yr	kWh/yr	kWh/yr	CO2 kg/yr
1	13393	1161	6169	175	1478	5620	27996	7355
2	14124	1224	6263	175	1530	5713	29029	7602
3	13393	1161	6169	175	1478	5620	27996	7355
4	14720	1276	6292	175	1546	5741	29750	7765
5	13861	1201	6244	175	1519	5693	28693	7524
6	14720	1276	6292	175	1546	5741	29750	7765
7	14720	1276	6292	175	1546	5741	29750	7765
8	14124	1224	6263	175	1530	5713	29029	7602
Total							231,993	60,731

Energy Efficiency Measures

Flat	Primary heating	Secondary heating	Hot water	Fans, pumps etc.	Lights	Appliances & cooking	Total	
	kWh/yr	kWh/yr	kWh/yr	kWh/yr	kWh/yr	kWh/yr	kWh/yr	CO2 kg/yr
1	9726	2629	5066	175	1450	5620	24666	6014
2	10365	2801	5147	175	1595	5713	25796	6238
3	9749	2635	5066	175	1497	5620	24742	6018
4	10912	2949	5173	175	1660	5741	26610	6392
5	9864	2666	5131	175	1659	5693	25188	6152
6	10912	2949	5173	175	1660	5741	26610	6392
7	10912	2949	5173	175	1660	5741	26610	6392
8	10365	2801	5147	175	1595	5713	25796	6238
Total							206,018	49,834