



**Annual Monitoring Report for
Tir y Gafel Ecovillage**

1st January 2015 – 31st December 2015



Contents

1. Framework for this report

2. Summary of Key Findings

3. Performance against Management Objectives

- a. All building and infrastructure development will have a small ecological impact.
- b. The natural wealth and biodiversity of the land will be enhanced.
- c. The settlement will become integrated into the local community.
- d. The project will offer the opportunity of affordable housing.
- e. There will be an effective traffic reducing strategy in place.
- f. The settlement will welcome visitors and provide an educational experience.
- g. The project will provide a support infrastructure for land-based sustainable livelihoods to develop.
- h. The project will conduct and publish research about the development.
- i. The development will embrace and support the Welsh language.

4. Entranceway Monitoring

- **Appendix 1: Household need and plot productivity calculation**
- **Appendix 2: Traffic data**
- **Appendix 3: Guidelines for household need and productivity calculation**

1. Framework for this report

This is the sixth annual monitoring report for the Tir y Gafel eco-village. The format is derived in part from the planning condition 3 (August 2009) and in part from the layout proposed in the settlement's Management Plan.

From the Lammas Planning conditions:

"3) No later than 1st April each year, commencing in the second year after development commences, the occupiers of the site shall submit to the local planning authority a written report giving details of the activities carried out during the previous twelve months, setting out performance against the management objectives included within the Management Plan, and the number of vehicle trips generated by the development. In the event that the report identifies that any objective has not been met, or that the number of vehicle trips exceeds the targets set in the Traffic Management Plan, a supplementary report setting out corrective or mitigating measures shall be submitted to the local planning authority no later than 1st July of that year. Those measures shall be implemented in accordance with the supplementary report."

From the Tir y Gafel Management Plan:

"10. Monitoring Arrangements

The society will produce an Annual Monitoring report. A copy of this report will be sent to Pembrokeshire County Council. The report will give a general description of the project's activities over the preceding 12 months. It will then chart the project's progress against a well-defined set of performance indicators. It will conclude with a resolution for future targets and propose changes to management practices.

10.1 Performance Indicators

1. Annual

- Ecological Footprint Assessment (SEI)
- 75% Productivity target
- Traffic volume and density
- Management objectives and evaluation
- Welsh language integration

2. Long term (4 year)

These performance indicators will be evaluated every 4 years due to the long term nature of their improvement programme.

- Soil health
- Biodiversity
- Number of new trees planted (accumulative)
- Length of new hedgerow planted (accumulative)
- Number of new ponds installed (accumulative)

3. Variable

- Grey water systems

2. Summary of Key Findings

Household Need Calculation

Last year (2014, year 5) the residents at Tir y Gafel were considered to have substantially met their functional needs from their land-based livelihoods by producing 75% of the functional needs from the land. Two calculations have been undertaken for year 6 (2015) with 75%, one including profits from land-based courses, consultancy and training (92%) and one not including profits from land-based courses, consultancy and training (74%)

Traffic Monitoring

The number of traffic movements in 2015 was calculated as 14,321. This is well within the annual limit of 17,810 traffic movements set in the Tir y Gafel traffic management plan

Ecological Footprint

The Tir y Gafel site is considered to have an ecological footprint of 1.5 global hectares/capita. This is in line with previous years' findings e.g. 1.55gha/cap in 2014 and 1.52gha/cap in 2013. This is well below the Welsh average of 4.41gha/cap and the site can be considered to be living within a one planet footprint.

Entranceway

The entranceway was inspected as per planning condition no.3 of the approved (decision date 1/8/2013) planning application for the Variation of Condition No:4 of consent APP/N6845/A/09.2096728 (08/962/PA). The surface and drainage arrangements of the entranceway were found to be in a satisfactory condition and no remedial work was deemed necessary.

3. Performance against Management Objectives

All building and infrastructure development will have a small ecological impact.

Any structure/building will need the approval of the Society as well as the local planning authority. The Society's planning procedure will be exclusively concerned with the low-impact nature of the development and as such will need a full set of plans/drawings/specifications for approval.

The Society will ensure that all development is in accordance with the aims and policies set out within this management plan.

The project as a whole will endeavour to aspire to a one planet ecological footprint, and therefore residents will need to be willing to have their dwellings and lifestyles analysed for research. The results of this will be fed back to inform household practice.



Progress on the building of dwelling houses has been much slower than expected with residents still living in ancillary buildings or caravans on site. No dwelling houses have yet been completed.

Yr Hwb was finally signed off by Building Regulations officers and is now being brought into use for courses and events.

An ecological footprint assessment was undertaken for households at Tir y Gafel in 2015.

The total ecological footprint for the development for 2015 was calculated as 1.5 global hectares per capita (gha/cap) compared with 2.55gha/cap for 2010, 2.39gha/cap in 2011 1.7gha/cap in 2012, 1.52gha/cap in 2013 and 1.55gha/cap in 2014. This perhaps indicates that the ecological footprint is levelling out at about 1.5gha/cap.

The amount of global resources available per person is currently considered to be 1.88gha/cap. Wales' ecological footprint in 2006 was estimated at 4.41gha/cap. The Welsh Nation could be considered as having a 2.35 planet footprint in 2006.

The Tir y Gafel project could be considered as having a 0.8 planet footprint in 2015 compared to a 0.82 planet footprint in 2014, a 0.81 planet footprint in 2013, 0.9 planet footprint in 2012, a 1.27 planet footprint in 2011, a 1.36 planet footprint in 2010.

In 2010 and 2011 this calculation was undertaken by an outside consultant using figures supplied by residents. For this year, and the previous three years, the on-line One Planet Development calculator was used. This, plus guidelines for its use, can be found at:

<http://wales.gov.uk/topics/planning/policy/guidanceandleaflets/oneplanet/?lang=en>

The natural wealth and biodiversity of the land will be enhanced.

During site and building works care will be taken not to cause any environmental damage. Any areas of notable environmental value (e.g. broadleaf woodland, hedgerows, and wetland) will be acknowledged and incorporated into the site plan in such a way as to conserve and preserve their natural value. Any existing wildlife corridors will be noted and conserved. Lammas will in effect be creating a network of small fields/forestry plots that will each be managed individually. In time, many individual ecosystems will establish themselves on the site leading to what Lammas expects to be an impressive increase in biodiversity.



The Tir y Gafel site continues in its huge transition from pasture to a mosaic of different ecosystems.

- *10,375 trees were planted in 2015. This brings the total number of trees planted since 2009 to over 18,000*
- *The millpond continues to be managed for biodiversity and wildlife through a policy of maintaining water levels, regulating algal blooms and cultivating an attitude of appreciation and conservation. Earthworks were undertaken in the millpond in order to slow down the rate the millpond silts up. Barley straw was used to prevent the build-up of filamentous algae. The millpond continues to support a healthy population of trout as well as supporting a range of breeding waterfowl. The millpond hosts a large population of breeding toads and is a valuable feeding ground for bats. Otters have also been sighted using the millpond.*
- *No new ponds were dug in 2015 and the number of new ponds constructed on site since planning permission was granted in August 2009 stands at 18.*
- *No additional hedgerow was planted in 2015 so the total new-plant hedgerow on site since 2009 stands at 2364m.*
- *Work has continued in the woodland as per the Woodland Management Plan; restoring over-stood hazel coppice and opening up rides in order to regenerate and diversify the woodland. Wildlife habitat, through leaving brash-wood and replanting with oak and ash, has been a primary focus and enhanced. In addition timber yields were harvested for building, firewood and crafts.*

The settlement will become integrated into the local community and will be an asset to the local economy.

We recognise the importance of open negotiations and consultations with local people in order to foster the spirit of mutual understanding and respect. We hope that the low-impact nature of the development, coupled with the many local benefits, will lead to local people appreciating the advantages of the development.

Local benefits will include:

- A boost for local businesses – owing to the project’s low-impact ethos, residents will naturally shop locally and make full use of local businesses, products and trades. Visitors to the settlement will also be encouraged to shop locally.
- Rights of way – the project will create a network of footpaths for public use through the site, opening up the land for walkers.
- Affordable housing – there will be a provision of affordable housing for people with low impact aspirations.
- Local economy – The settlement will add to the local economy by offering a range of skills, crafts and produce. The Society will encourage businesses developed within the settlement to consult locally in order to complement, rather than compete with, existing small businesses in neighbouring towns and villages.
- Public transport provision – The Lammas minibus will be available for local people to use.
- A part-time shop and café

Life continues in a very normal way with residents shopping in local shops and children attending local schools, joining in after-school clubs and engaging in a whole range of activities.

The Hwb was finally signed off by Building Regulations officers and began to realise its full potential in 2015. Of note was the first Tir y Gafel Christmas fayre which was very well attended by local people. In addition many courses are now being run at the Hwb with many attended by local people

The network of footpaths across the site are well used by walkers, dog-walkers and horse-riders.

The project will offer opportunity of affordable housing

The properties will be available in perpetuity. That is to say that when a resident leaves the project, they will sell their lease on the open market. The lease will contain the various conditions and regulations which will ensure the low-impact aims of the project will be maintained. Lammas fully expects that (due in part to these restrictive conditions and also due to the continuing availability of land on which low-impact developments can take place) the prices for such leases will fall well below market rates.

All 9 plots were occupied for the entirety of 2015. No residents have departed since the project's inception in 2009.

There will be an effective traffic reducing strategy in place.

The project has a well-defined traffic management policy in place which takes into consideration all aspects of traffic generation. Essentially the project is an integrated residential and livelihood development which will by its nature allow residents to live a lifestyle less dependent on vehicle use. Most of the household needs will be met directly from the site. These include:

- Land-based employment
- Additional employment
- Social networks (by the nature of the community)
- Recreational provision (e.g. playground for children, walking for adults)
- Services (Water, electricity, fuel)
- Livelihood support (skills and knowledge)
-

The regulatory mechanisms which will ensure that traffic will be minimised include:

- Residents will be required to share vehicles
- A Society minibus will provide a link with local towns
- The minibus will also be available for additional trips/one-off opportunities
- All deliveries to and from the site will be coordinated
- Financial incentives will be used to encourage visitors to travel by public transport
- All traffic will be monitored and reviewed on an annual basis

During 2015 11 vehicles were operated from Tir y Gafel by residents

Much car sharing takes place on site in terms of school runs, runs to clubs and activities and helping out when vehicles are broken down or in the garage.

Vehicle journeys to and from the project were counted by using an automated traffic

counter. The automated traffic counter operated from 1st January to 31st December. Due to several technical hitches data was not collected from all days during this period. Data is available for 136 days in 2015. The data for the whole year has been extrapolated from this. This traffic counter data is included in Appendix 2.

Average vehicle trips per week made to and from the site (noting that a return journey is 2 trips) was 275.

Average vehicle trips per day made to and from the site (noting that a return journey is 2 trips) was 39.

Total number of vehicle trips in 12 months (from 1st January 2015 to 31st December 2015) was considered to be 14,321 (of which 300 were as a result of disability transport). The maximum vehicle count (as detailed in the Traffic Management Plan) is set at 25,278 per annum during the first three years (considered as the Building Phase) and 17,810 per annum thereafter. The current level of traffic generated by the Tir Y Gafel site is therefore under the allocated quota.

As the site is still very much operating in the set-up phase, with no dwellings yet completed and all available energy on-site focussed on the building of dwellings, the issue of the minibus has not yet been addressed. This, however, is not to say that it won't be addressed in the future. It is simply that the set-up phase is taking much longer than initially expected.

The settlement will welcome visitors and provide an educational experience

It is likely that the project will, due to its innovative nature, attract visitors. Most of these will be attracted to the exploration of principles of sustainability. It is important that examples of low-impact development are available for people to experience. Low-impact development offers one potential solution to the challenges of addressing climate change, limiting fossil fuel consumption, affordable housing and the farming crisis.

It is equally important to balance the project's contribution to a wider sustainability transition with the need to ensure that visitors' travel arrangements are also low-impact.

Thus the Society has a policy that welcomes visitors within a clearly defined framework, designed to minimise visitor vehicle use.

The settlement will remain open to visitors at all times, though reserves the right to implement measures designed to control visitor numbers (for example parking fees), and will endeavour to encourage the clustering of visitors on certain days when residents of the project will give guided tours of the project.

A range of information resources will be available for visitors.

Access to the settlement will be from the Llanfyrnach to Glandwr road. At the entrance to the site will be a gateway featuring a sign which will clearly display when the settlement is open and closed.

Adjacent to the car-parking area and Minibus stop will be a "Welcome Point" which will serve to inform visitors to the range of facilities available.

There will be a community hub building on the site. This will provide a meeting place for both community members and visitors. Indeed, it will be the starting point for guided walks and tours.

It will also house a part time café and a part-time shop (the trading post) from which visitors will be able to purchase produce from the locality.

Each Saturday, from April to September, advertised tours of the site were given by residents to members of the public. These tours were well attended.

In addition to the Saturday tours a number of other facilitated tours were given to the following groups:

*Ysgol y Preseli (6th form course in global development)
Bristol Permaculture Group (Shift Bristol)
University of Wales, Trinity St. David's (Social Science & Welsh Bacc. students)
York St. John University (Film and Television Students)
Green Village Tour (with Vicky Moller)
Pembrokeshire Coast National Park Planning Dept.
Centre of Alternative Technology (Architecture Students)
Working Weekends On Organic Farms organisation*

A number of events/conferences and courses were also held at Tir y Gafel

*2 x One Planet Experience Week courses
Family adventure camp – giving people with children an opportunity to experience a low-impact life-style.
Woodcraft Folk (two visits)
One Planet Council: Conference for Planners
One Planet Council: One Planet Development applicants training course
Willow Christmas crafts course (Plas Helyg)
Willow reindeer sculpture (Plas Helyg)
Reciprocal Frame Roundhouse Course (Plas Helyg)
Cob Building Course (Plas Helyg)
Earth Spirit Course (with Robina McCurdy)
MA Film Evening (Rhys Thomas, University of Aberystwyth)*

The project will provide a support infrastructure for land-based sustainable livelihoods to develop

Each household will be required to provide at least 75% of its household needs from land based activity. Each household will have access to the equivalent of approximately 8 acres on which to develop a land based livelihood. Residents will have exclusive use over some areas of this land, and will share other areas.

To create a sustainable land based lifestyle is enormously challenging. The farming community will affirm that in today's economic climate there is very little money to be made from the land. This coupled with the challenges of environmentally conscious living (for example, reducing one's travel needs) creates an adverse environment for low-impact smallholders. Only through establishing a sufficiently large group of low impact holdings can the potential of the project as a model for sustainable development be fully realised. Thus we are planning a settlement of 9 smallholdings.

With the momentum of the group helping to sustain the project in the long term, a local economy centred around land based productivity will flourish. A culture of low impact lifestyles will grow and provide support and inspiration both within the project and beyond.

The support services which Lammas will offer its residents include:

- The society will provide a health and safety certified kitchen for residents to process and thus add value to their food produce.
- There will be a part-time shop (trading post) and café from which residents can sell their produce.
- Residents will be able to advertise and sell produce through the Lammas website
- If residents' produce is of a sufficiently high standard, they will be able to use the Lammas logo as a marketing tool.

- Lammas will also offer each household timber from the community woodland so that the production of value-added craft can be explored.

The supplementary planning guidance, Low Impact Development – Making a Positive Contribution for policy 52 of the Pembrokeshire JUDP (now superseded by the Pembrokeshire LDP) under which the Tir y Gafel development was granted permission in 2009 states that “The proposal will provide sufficient livelihood for and substantially meet the needs of residents on the site”. The guidance goes on to state that “The term ‘substantially’ meets the needs of the residents on site’ means that 75% or more of basic household needs will be met by means of activities centred around the use of resources grown, reared or occurring naturally on the site”.

Unlike in previous years the data for each individual plot is not shown. Instead the data has been dealt with on a whole-site basis with the data for all nine plots being amalgamated for each category (see Appendix 1).

This year two calculations are presented for the functional needs assessment. For the first calculation a financial value was attributed to all produce grown, reared and consumed by all households. This was added to the financial value of profits from sales from the plot (both direct sales of produce and sales of products made using plot-based materials). These are considered to be the primary activities of any plot. The value of land-based electricity, water and fuel production was also added to this figure.

The second calculation is for needs met from the site by means of produce consumed and sold plus earnings from land-based courses, consultancy and training. This methodology is the same as that described above plus the addition of earnings from training, education courses or consultancy that is directly linked to land based activities. It is important to note that earnings from training etc. are clearly subsidiary to the primary activities of a plot (i.e. produce grown, reared, made and sold plus produce consumed. This does not include figures for electricity, water and fuel production). Activities such as cob building courses, timber framing courses, willow basket weaving courses, residential low-impact weeks and eco-village tours have been included in this category.

Unlike in previous years neither Feed in Tariff payments nor “off-plot concessions” (see annual monitoring reports from years 4 and 5 (2013 & 2014) have been factored into any calculations.

The value placed on total household need for the settlement in 2015 is: £116,474

The value placed on the needs met directly from the site but not including courses, consultancy and training (calculation 1) is: £85,982 = 74%

The value placed on needs met directly from the site including courses, consultancy and training (calculation 2) is: £107,265= 92%

See Appendix 1 for a breakdown of the amalgamated data.



The project will conduct and publish research about the development

Lammas aims to promote low-impact development as a tool for realising Wales' sustainability goals. Lammas will facilitate a research team to conduct and evaluate the project's success. The research will primarily be concerned with:

- The settlement's ecological footprint.
- The settlement's impact on the land in terms of habitat, biodiversity and soil quality.
- The impact of the settlement on the local economy and community

Research will be published through a number of media to maximize accessibility and stimulate scrutiny lay, policy, planning and academic stakeholders. A monitoring report will be produced on an annual basis. In addition to this Lammas will conduct specific research projects so that the project can be used as a model for learning and the on-going development of best practice.

Lammas actively supports research on the project. Research reports can be found at the Lammas website (<http://lammas.org.uk/research/>)

Two dissertations submitted to us in 2015 are located there. These are:

Seeing beyond looking: my glance at low-impact development in Wales by Rhys Thomas, 2014, University of Aberystwyth for a multi-disciplinary MA for the departments of Theatre, Film and Television Studies & International Politics.

Mainstreaming the Alternative: The Lammas Eco-village and the Governance of Sustainable Development in Wales, 2015, University of Aberystwyth for a PhD in the Department of Geography and Earth Sciences.

Several researchers visited Tir y Gafel in 2015 from the following universities:

Middlesex University (Photography)

University of Cardiff (Illustration)

University of Cardiff (Journalism)
University of Sunderland (Photography)
Ysgol Gyfun Emlyn (Photography)
Queen's University, Belfast (Social Anthropology)
University of South Wales (Sustainability)
University of Indiana (Psychology Department)

The development will embrace and support the Welsh language.

Lammas recognises the importance of the Welsh language and culture in North Pembrokeshire and sees low impact development as supporting this local language and culture, united by a common connection with the land and local rural knowledge and traditions. Lammas has a Welsh Language policy to ensure its support of the Welsh Language. Whilst several proposed residents already speak or are learning Welsh, most intend to learn once they move onto the site and Lammas aims, over time to become fully bi-lingual.

Signage around the Tir y Gafel site is bilingual.

Of the 17 adult residents, 5 attended Welsh classes in 2015 with two taking and passing their Canolradd exam (equivalent to a GCSE in Welsh as a second language).

Many children on site attend the local Welsh medium primary and secondary schools.

On the Lammas website, those pages considered to be 'key' are available in Welsh.

4. Entranceway Monitoring

Permission was granted on the 1st August 2013 (planning application no. 13/0153/PA for the Variation of Condition No: 4 of consent APP/N6845/A/09/2096728 (08/0962/PA). Permission was granted subject to a number of planning conditions. Planning condition no.3 states that:

"The proposed vehicular access to the county road shall be surfaced in the area from the highway to the cattle grid in such a way as to prevent loose material and surface water discharging on to the highway. The surface and drainage arrangements of the entrance shall be inspected a minimum of two times a year at 6 monthly intervals, to ensure that no loose material or surface water is being discharged onto the highway. Any necessary repairs shall take place within 3 months of the initial inspection. A report detailing the findings of the inspections and any repairs shall be submitted to the Local Planning Authority for approval, concurrently with the management objective report which is to be submitted annually in accordance with condition 2 above. If the findings of the report conclude that the surface is in a poor state of repair, the occupiers of the site shall repair the surface in accordance with a scheme submitted to and agreed in writing by the Local Planning Authority.

Reason: To ensure that no deleterious material is brought onto the highway and to accord with policy GN.1 of the Local Development Plan for Pembrokeshire (adopted 28 February 2013)."

The report detailing the findings of the inspections is as follows:

The entranceway is composed of compacted shale bound by clay finings. This material was quarried on site in 2010 and the entranceway installed in 2010.

Inspections were undertaken by Leander Wolstenholme on behalf of Lammas Low Impact Initiatives Ltd. on the 22nd April 2015 and 14th October 2015. During each 6 monthly inspection the following items will be noted and any necessary action undertaken:

1. *The drainage pipe that cuts across the width of the track to the north west of the cattle grid will be checked and any debris will be removed to ensure that the entrance and exit of the pipe is clear.*

Findings on 22/4/15: No debris was noted and the entrance and exit of the pipe is clear.

Findings on 15/10/15: No debris was noted and the entrance and exit of the pipe is clear.

2. *The drainage pipe that is located at the southern corner of the cattle grid will be checked and any debris will be removed to ensure that the entrance and exit of the pipe is clear.*

Findings on: 22/4/15: No debris was noted and the entrance and exit of the pipe is clear.

Findings on: 15/10/15: No debris was noted and the entrance and exit of the pipe is clear.

3. *The area between the cattle grid and the county road will be checked for the presence of pot holes. Any pot holes found will be repaired using compacted shale and clay finings. This material for repairs was quarried on site 2010 and is currently stored at Tir y Gafel on site of the former quarry. Great care will be taken over this work to ensure a long lasting repair.*

Findings on 22/4/15: No pot holes were noted. The county road had been resurfaced.

Findings on 15/10/15: No pot holes were noted.

4. *Vegetation on both sides of the entranceway will be inspected in August. Any vegetation found to be obscuring the sight lines along the county road will be cut back to ensure a clear view from the entranceway in both directions along the county road.*

Findings on 22/4/15: No vegetation was found to be obscuring the sight lines along the county road.

Findings on 15/10/15: No vegetation was found to be obscuring the sight lines along the county road.

Appendix 1: Household need and plot productivity calculation

Tir y Gafel

Functional Needs Assessment (amalgamated data for plots 1-9)

75% Calculation 2015 (year 6)

Category	Household need (£)	Value from land (£)
Domestic Wood Use	4010	3395
Domestic Gas Use	1272	0
Domestic Electricity Use	16561	16096
Provision of Water	4238	4073
Household food (annual)	54298	31695
Basic household clothing	3353	0
Annual Dwelling Maintenance	4465	3850
Other overhead requirements: Telephone/internet	4781	0
Other overhead requirements: Council Tax	5762	0
Other overhead requirements: Transport Costs (including fuel, car repairs, car tax, mot, car insurance etc.)	17559	0
Insurance (household etc.)	175	0
Total	116,474	59,109

Tir y Gafel: Amalgamated Profits from Land-based Businesses (Plots 1-9) for 2015 (year 6)

Produce grown or reared sold	Profit (£)	Produce made & sold	Profit (£)	Income from training, courses & consultancy	Profit (£)
Vegetables, eggs and plants	4497	Garden furniture	550	Tours, talks and lectures	2473
Salads to restaurants	5753	Chutneys, jams, preserves	48	Consultancy	9116
Firewood	380	Fruit vinegars	149	Courses at Tir y Gafel	7580
Worms/casting	50	Beeswax products	745	Literature sales	2114
Hay	330	Skincare products	5680	Total	21,283
Willow	910	Willow courses & sculptures	4010		
Honey and honey products	265	Catering	700		
Seed saving	690	Total	11882		
Livestock	620				
Berries	120				
Cut Flowers	40				
Potted Plant sales	1056				
Leather	260				
Garlic	20				
Total	14991				

Appendix 2: Traffic data

Tir y Gafel Automated Traffic Counter Statistics for 2015 (Year 6)

01/01/2015	21	08/03/2015	59	29/09/2015	59	12/11/2015	5
02/01/2015	23	09/03/2015	38	30/09/2015	39	13/11/2015	11
03/01/2015	32	10/03/2015	34	01/10/2015	91	14/11/2015	70
04/01/2015	19	11/03/2015	65	02/10/2015	26	15/11/2015	37
05/01/2015	43	12/03/2015	51	03/10/2015	51	19/11/2015	31
06/01/2015	51	13/03/2015	41	04/10/2015	40	27/11/2015	34
07/01/2015	43	14/03/2015	40	05/10/2015	44	28/11/2015	23
08/01/2015	57	15/03/2015	42	08/10/2015	24	29/11/2015	11
09/01/2015	60	20/03/2015	29	09/10/2015	53	30/11/2015	64
10/01/2015	44	21/03/2015	40	10/10/2015	45	01/12/2015	21
11/01/2015	30	22/03/2015	20	11/10/2015	47	Total	5336
12/01/2015	68	23/03/2015	22	12/10/2015	41		
13/01/2015	43	24/03/2015	21	13/10/2015	58		
16/01/2015	34	25/03/2015	49	14/10/2015	46		
21/01/2015	24	26/03/2015	46	15/10/2015	47		
22/01/2015	51	27/03/2015	37	16/10/2015	47		
23/01/2015	27	28/03/2015	24	17/10/2015	26		
24/01/2015	40	29/03/2015	29	18/10/2015	20		
25/01/2015	16	30/03/2015	40	19/10/2015	10		
26/01/2015	46	31/03/2015	21	20/10/2015	23		
30/01/2015	37	01/04/2015	29	21/10/2015	33		
31/01/2015	59	07/04/2015	22	22/10/2015	99		
05/02/2015	24	08/04/2015	30	23/10/2015	22		
06/02/2015	33	09/04/2015	28	24/10/2015	39		
07/02/2015	23	10/04/2015	40	25/10/2015	30		
08/02/2015	16	11/04/2015	15	26/10/2015	13		
09/02/2015	17	12/04/2015	18	27/10/2015	73		
10/02/2015	14	15/04/2015	54	28/10/2015	52		
11/02/2015	28	16/04/2015	29	29/10/2015	94		
19/02/2015	50	17/04/2015	32	30/10/2015	40		
20/02/2015	39	18/04/2015	16	31/10/2015	122		
21/02/2015	39	08/05/2015	35	01/11/2015	38		
22/02/2015	57	09/05/2015	55	02/11/2015	12		
23/02/2015	35	10/05/2015	51	03/11/2015	33		
24/02/2015	57	11/05/2015	60	04/11/2015	29		
25/02/2015	58	12/05/2015	64	05/11/2015	46		
26/02/2015	70	23/09/2015	71	06/11/2015	49		
27/02/2015	33	24/09/2015	59	07/11/2015	33		
28/02/2015	67	25/09/2015	46	08/11/2015	15		
01/03/2015	28	26/09/2015	52	09/11/2015	13		
02/03/2015	43	27/09/2015	61	10/11/2015	11		
07/03/2015	40	28/09/2015	32	11/11/2015	10		

Appendix 3:

Guidelines for the Calculation of Functional Needs

January 2016

Domestic Wood Requirement:

For the provision of land-based wood it's difficult to estimate by the tonne how much wood you have as you need a really massive weighing scales. It's easier to value per m³ (also apparently legal). Prices vary but I have found a website (<http://www.firewoodandlogs.co.uk>) and they use the following prices:

Seasoned Hardwood: £115/m³

Seasoned Softwood: £90/m³

Of course for non-land based wood you would use the price you paid for it. It can be difficult to know the quantity you have bought. I would suggest using a price/m³. Only do the calculation for how much you have used that year, not how much you have bought in that year.

Domestic Gas Requirements

If the fuel used for cooking is LPG cylinders use the price from Nick the Gas (Bwlchygroes):

£51 for a 47kg cylinder (tall orange one).

Domestic Electricity Requirement:

Knowing how much electricity you have used or are using can be a little tricky. You can estimate from the wattage rating on the appliance and then estimate how many hours you have used. The more fastidious amongst may even make a note of hours useage in a note book. These people should be revered although I'm not entirely convinced they actually exist. We have a gizmo that you plug in and it tells you how much electricity you are using. Anyone is welcome to borrow it.

I suggest pricing the electricity using Good Energy tariffs as they guarantee to supply 100% directly from renewable sources (so they're a bit like us aren't they?):

Standing Charge 22.64p/day (=£82.64\annum)

Unit Rate (p/kwh) 14.55p

Don't forget to include electricity generated from solar panels.

It's important to note that any electricity useage off site for household functional needs e.g. launderettes, should be factored in as non-land based electricity useage.

Launderette machines use about 1.25kwh per washing machine cycle and dryers use about 4.1kwh per drying cycle.

The following information may or may not be of use/interesting: the University of Strathclyde undertook some research into energy useage in Scotland and came up with the following example figures per year:

Working couple 4117kwh

Single person 3084kwh

Couple with two children 5480kwh

Provision of Water

Dŵr Cymru tariffs seem the most appropriate to use as we are in Wales.

The system is a little complicated and includes a charge for sewerage. In the past we've tended to include a cost for sewerage. It's probably fair to include this as we do deal with our own sewage.

The most practical method to calculate water useage for our situation is to use the Assessed Measure Charge. This is used in cases where Dŵr Cymru are unable to install a meter for whatever reason.

The banding is set by the number of appliances which use water in your property such as a washing machine, garden hose, garden sprinkler, dishwasher or power shower.

- **Low banding** - none or one of the above appliances.
- **Average banding** - two or more of the above appliances.

It is up to you to decide which banding is appropriate for you.

Household – Water

No of Occupants	Band A – Average use Based on loading units/ appliances in property		Band B – Low use Based on loading units/ appliances in property	
	Fixed Charge £	Consumption m ³ /year	Fixed Charge £	Consumption m ³ /year
1	118.41	64	102.41	52
2	159.41	96	136.41	78
3 and above	208.41	133	174.41	107

Household - Sewerage

No of Occupants	Band A – Average use Based on loading units/ appliances in property		Band B – Low use Based on loading units/ appliances in property	

	Fixed Charge (£)	Fixed Charge (£)
1	181.58	162.58
2	232.58	204.58
3 and above	291.58	249.58

There are 1000 litres in a cubic metre (m³)

It's important to note that any water usage off site e.g. for launderettes, showers etc. should be factored in as non-land based water usage.

Showers: the flow rate of showers varies from about 5 litres per minute to about 11 litres per minute.

Launderette machine uses about 120 litres per cycle (up to 180 litres per cycle for less efficient machines).

Household Food:

This calculation includes all food and drink items consumed on and off site (and during holidays) including treats such as chocolate, ice cream, crisps & alcohol. The calculation does not include tobacco.

The attached food production template may be helpful for this calculation (available on request). The simplest way to use this template is to estimate how much food you were consuming in each category prior to land-based production and then how much you were consuming once you are engaged in land based production. So, for example, you might have been spending £20/week on vegetables. Then you may have been self sufficient in vegetables for 6 months of the year. So the value of your total vegetable consumption for a whole year is £1040 of which £520 is from land-based production. Therefore 50% land-based production is for vegetables. You would do this sort of estimate for each of the categories in the food production template.

Whilst this method of broad estimates does lack a certain degree of accuracy we felt it was the most practical because not everyone has been weighing every item of produce and keeping meticulous records. Also, valuing every item of produce individually could result a situation where a family may eat nothing but wood sorrel (£150/kg) and scarlet elf cups (£100/kg) in order to achieve 75%. This would not be a reasonable approach and would not reflect the way of living we are trying to achieve (also....the health issues!)

It's important to note that costs for things such as seeds, animal feed, manure etc. should be subtracted from the value of food produced for you own household's consumption.

Don't forget to include food that your children eat for their school dinners. This will be non-land based produce if the dinners are bought.

The following table take from the Joseph Rowntree Foundation's Minimum Income Standards calculator may or may not be helpful. It is what they consider ought to be (to keep on the right side of poverty) the minimum weekly spend for people in the UK. I used their on-line Minimum Income Standards calculator in February 2016 to get these figures (given in £s).

	1 adult	2 adults	2 adults, 3 children (2 secondary, 1 primary)	2 adults, 3 children (1 secondary, 2 primary)	2 adults, 2 children (2 secondary)	2 adults, 2 children (1 primary, 1 secondary)	2 adults, 2 children (1 primary, 1 less than 2 years old)
Food	50.04	85.97	137.92	136.04	130.35	128.47	122.79
Alcohol	5.40	17.10	7.48	7.48	7.48	7.48	7.48
Clothing	11.57	23.36	76.69	65.45	66.40	55.16	41.87
Water Rates	5.80	6.85	10.15	10.15	6.71	6.71	6.71
Council Tax	14.77	19.69	22.97	22.97	22.97	22.97	22.97
Household Insurances etc.	1.92	1.77	2.65	2.65	2.39	2.39	2.39
Gas, electricity etc.	34.78	35.49	35.84	35.84	45.47	45.47	46.34
Other housing costs	2.67	5.15	10.32	10.32	8.45	8.45	8.45
Household goods	12.35	13.90	31.80	30.80	24.46	23.36	24.68
Household services (phones, internet etc.)	4.11	7.04	17.39	14.60	12.90	14.60	7.32
Childcare	0	0	0	0	0	0	0
Personal goods and services	12.30	22.94	38.14	33.92	34.67	30.45	36.02

(health spending)							
Travel costs and motoring	45.34	81.77	118.50	113.46	115.80	110.76	104.26
Social and cultural activities (includes holidays, eating out and spending on birthdays, xmas etc.)	49.30	76.98	203.93	191.08	156.29	143.44	117.91
Rent	86.13	94.28	103.99	103.99	92.42	92.42	92.42
Mortgage	0	0	0	0	0	0	0

It's important to note that all these figures are based on supermarket spending (e.g. Joseph Rowntree base all their figures on Tesco). If you are not habitually going to supermarkets and are shopping locally and organically your spend will be higher (organic food can be 20%-100% more expensive).

Basic Household Clothing:

The Joseph Rowntree Foundation calculate spending on clothing by dividing the price paid for an item by the number of years the item will last e.g. if a coat cost £50 and will last 25 years the annual cost of the coat is $£50 \div 25 = £2/\text{year}$.

It is perfectly acceptable to use this method for the 75% calculation.

If you annually spend more or less the same amount on clothing each year it's going to work out more or less the same as the method described above over time. Therefore, if it suits your spending patterns

better, you can simply state the amount you have spent on clothing annually (it's certainly a lot easier on the brain).

This is the only category where the word "basic" is stated in the policy 52 supplementary planning guidance. It is therefore open to some interpretation. I think everyone is able to interpret this quite sensibly. So, for example, fancy dress items such as superhero outfits, fairy costumes etc. need not be included etc.

Set-up costs are excluded from the 75% calculation so any clothing bought for work purposes e.g. steel toe-cap boots, overalls etc. need not be included. Arguably some items of clothing will be for both work and everyday living purposes. Technically you could assign a portion of the cost to work and a portion to livelihood – but that's a bit fiddly isn't it?

Annual Dwelling Maintenance

This is a bit of an odd one at the moment as many of us are still building. However, the cost of materials needs to be included and a value placed on any land-based materials used. It is also acceptable to value one's own time as land-based livelihood. However, it is expected that this will be assessed reasonably and honestly i.e. you can't spend all year, 8 hours a day fixing your house!

It's important to note that you cannot apportion hours to the actual build itself as this is set-up costs and set-up costs are excluded from the calculation.

Other Overhead Requirement: Telephone, Internet

Self explanatory, hopefully.

Other Overhead Requirement: Council Tax

Self explanatory, hopefully. Should you be receiving council tax benefit payments you should still include council tax as a household need. The council tax benefit payments will count as non-land-based income.

Other Overhead Requirement: Service Charge, Rent

Self explanatory, hopefully, although I'm not sure what the service charge has been this year!

Other Overhead Requirement: Transport Costs

This includes all vehicle fuel costs, car repairs, MOT, tax, insurance all train and bus journeys **apart from** journeys undertaken for holidays

Other Overhead Requirement: Insurance (buildings, household etc.)

Self explanatory hopefully.

Other Land Based Products and Services:

In this section it's important to put down profits from your enterprise (set-up costs are not exempt here) – just like for your tax return. There are four main areas of income generation:

Grown or reared produce sold

This should be relatively straightforward to calculate. It's the price you were paid minus any costs you incurred in the production of the item.

Products made and sold

This is slightly more complicated. It's the price you were paid for the item/items minus any costs you incurred in the production of the item including the cost of any non-land based items you had to buy-in in order to make the item.

Income from training and education courses, or consultancy directly linked to land based activities on the site

It's important to note that these activities (in combination with Feed in Tariff payments) should be clearly subsidiary to the primary activity of growing and rearing produce on the land.

If a course has involved the use of your land-based materials e.g. willows, treat it as though you have sold the materials to the course and add it to your figure for grown or reared produce.

Feed in Tariff payments from Hydro produced electricity

Feed in Tariff payments (in combination with income from courses, training or consultancy) should be clearly subsidiary to the primary activity of growing and rearing produce on the land.

Exclusions

The following are excluded from the above calculations:

- Set-up costs – These include anything to do with house building, polytunnels, purchase of tools, equipment, tree planting, compost, furniture, crockery, cutlery etc. It is worth noting that volunteer labour used for the establishment of your plot and your build is a set-up cost. Therefore don't include any food that you have bought or grown in this calculation. In fact don't include anything you have spent on volunteers (e.g. clothing etc.)
- Non-essential items – Holidays (and the travel involved), non-basic clothing
- Mortgage repayments for your plot