

**Agricultural Proof of Evidence
for Greenham Reach Smallholdings
December 2012**

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**IN RELATION TO APPEALS APP/Y1138/A/12/2181807,
APP/Y1138/A/12/2181808, and APP/Y1138/A/12/2181821**

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Summary Proof

Qualifications and Experience

I hold an MSc in Sustainable Agriculture from Wye College (1999), a BSc (Hons) in Geography (1996), and a Permaculture Design Certificate (2005), and have fifteen years of practical experience of working on mixed farms and organic market gardens.

Statement of Professional Opinion – I can confirm that the opinions expressed are my true and professional opinions based upon the experiences outlined above.

The Nature of Small-Scale Ecological Farms

Choice of technology and design - These businesses integrate several enterprises to spread economic risk and even the annual workload. Technologies chosen are of a scale and cost appropriate to the needs of the holding, using hand labour where cost of technology or environmental impacts dictate.

Multiplicity of Needs – The cumulative needs of the multiple enterprises mean that they would not be feasible without an on-site presence. In seven appeal decisions Inspectors have acknowledged that the combined needs of low impact smallholdings constitute an essential need for a residential dwelling.

Essential Needs Common to all Three Plots

Irrigation – The Soil Association standards state that, “you should water crops in the morning or early evening to minimise evaporation losses” (Soil Association Regulation 4.16.24).

Slug Control – Night-time hand picking is agreed to be the most reliable way of reducing the slug population.

Early morning harvesting – Vegetables must be harvested while they are cool in the early morning.

Large pests and escaped livestock – Fencing and crop covers can reduce damage, but crop covers are time consuming to remove when harvesting, while only a person can notice and act if animals have got into the fenced area.

Poultry protection – Poultry must be shut in at dusk, requiring an on-site presence until 9.30pm in the summer. Loss of laying hens would interrupt egg supply, with impacts on the businesses' reputations for reliability.

Extreme weather conditions – High winds require onsite decision making about how to protect polytunnels. Recent winters have brought heavy snowfalls, ice and floods, which have disrupted road travel. For animal welfare reasons, an onsite presence is necessary to care for poultry.

Essential Needs Specific to Plot C

Seedling propagation – Over 3,200 seedlings will be raised for sale and use in the market garden. They must be kept at a constant 18°C by water pipes heated using a wood burner. Burners need to be stoked during cold winter nights. Loss of seedlings would cause income loss from delays in cropping.

Polytunnel Crops – Tomatoes and cucumbers will be protected against temperatures below 8°C, by a log burner fuelled "central heating system", which needs to be restoked late at night. A 15kw automated wood pellet boiler, capable of heating one tunnel, would cost £6,970. To heat both growing tunnels and the propagation tunnel, would increase the cost of the automated system above the amount budgeted for building a dwelling (£7,300 for Plot C).

Poultry enterprise - Due to the site being off-grid, the electricity to power the heat lamps for the chicks will require more diligent monitoring than a mains system. The loss to the business of one batch of meat and pullet chicks would be £1,348.

Essential Needs Specific to Plot A

Annual vegetables – The proposed box scheme requires careful crop planning to ensure that boxes are filled with sufficient variety each week. The fossil fuel free claims of the scheme would make it hard, if not impossible, to buy in produce to substitute for crop losses.

Protection of outdoor crops – Protection of sweet corn, squash and grains against badgers can be provided by erecting an electric fence, with an alarm system to indicate a breach, to alert the sleeping grower.

Cultivation of polytunnel salad crops – A judgement of whether or not to use fleece to protect crops from frost may need to be made late in the evening, if cloud clears unexpectedly.

Essential Needs Specific to Plot B

Salad and herb business – Success relies on succession planting, to ensure continuity of supply throughout the year. Harvest begins at 5 or 6am to ensure leaves are cool and moist.

Frost protection - Both outdoor and indoor salads can be protected from frost by covering with horticultural fleece, but this is time-consuming and only worthwhile if a frost is likely. It worth trying to maintain a small supply of bags through the winter for the price premium. In Somerset, I have records of prices of £18.60/kg being charged for salad leaves in January, compared to £10-£14/kg in June.

Conclusions

A New Way of Farming – The small scale, labour intensive businesses proposed rely on careful design and detailed management, to achieve high yields and profit off a small acreage. Such businesses are emerging in response to the environmental and economic problems associated with industrial farming.

Attention to detail – Retailers, restaurateurs, hoteliers and caterers are keen to use local produce, but they will only continue to buy if they are offered a reliable, convenient service and a high quality product. It is the full-time focus and hard work of a knowledgeable smallholder that makes it possible for local food production to turn a profit.

The Needs of the Holding – The success of holdings such as these relies on achieving maximum efficiency to create a high return and this is best achieved by the smallholder living on site. I conclude that there is firm evidence of essential need for all three holdings.

1. Qualifications and Experience

- 1.1 Academic qualifications – In 1999 I graduated with distinction from my MSc in Sustainable Agriculture at Wye College, University of London. For my dissertation I studied the early stages of farmers' market development in the UK, which led to my working as a research and development worker at Somerset Food Links for two years (2000-2002). I also hold a BSc (Hons) degree in Geography from the University of Newcastle-upon-Tyne and have completed a Permaculture Design course, under Patrick Whitefield.
- 1.2 Horticultural/agricultural experience – Since 1997 I have been working on mixed farms and organic market gardens between and alongside academic work. For three years I ran a small horticultural enterprise in Somerset, and during 2010-2012 grew vegetables to supply local shops and restaurants in West Sussex.
- 1.3 Planning experience – I have been undertaking agricultural appraisals and participating in planning appeals for low impact agricultural dwellings since 2002. To date I have acted as agricultural witness for cases such as Fivepenny Farm (Dorset), The Trading Post (Somerset), Trevalon Organic Vegetables (Cornwall) and Blackthorn Farm (Dorset), all of which have gained planning permission.
- 1.4 Publications - In 2008 my book, "*Surviving and Thriving on the Land: How to use your time and energy to run a successful smallholding*" was published by Green Books. In researching for the book I visited and studied in depth twenty-eight land based projects, to discover how smallholders can run economically viable smallholdings whilst sustaining their own physical and mental well being. I therefore have a detailed understanding of the demands of mixed and horticultural smallholdings, as well as technical knowledge of organic production and land management practices. I have written a number articles for the smallholding press, am a co-author of "*Small is Successful: Creating a livelihood on ten acres or less*" (published by the Ecological Land Co-operative in 2011) and undertake research contracts for other NGOs supporting local food initiatives.
- 1.5 Statement of Professional Opinion – I wrote the agricultural appraisals submitted with

the original planning applications (references: 11/02007/MFUL, 12/00045/MFUL and 12/00107/MFUL). I have been called as an agricultural witness at this appeal due to my combination of qualifications and experience in the field of sustainable agriculture and Low Impact Development (LID). I can confirm that the opinions expressed are my true and professional opinions based upon the experiences outlined above. Although I do not belong to a professional body for the purposes of writing agricultural appraisals, I am a member of the Organic Growers Alliance and the Soil Association. The evidence which I provide in this proof of evidence has been prepared in consultation with other growers, agroforestry experts and poultry keepers, and is true to the best of my knowledge.

2. Preamble

- 2.1 In my agricultural appraisals I assessed the proposed businesses and the prospective tenants for Plots A, B and C of the Greenham Reach smallholdings against the five tests set out in Annex A of PPS7 (functional need, financial viability, intent and ability, etc.). All that I said in my previous agricultural appraisals still stands. However, in my proof of evidence I have been asked only to address the Council's first reason for refusal: *the essential need for a rural worker*. It is the Local Planning Authority's (LPA) view that there are no horticultural/agricultural operations on the land which require someone to live on-site, and that all the holdings could very well be administered by someone living locally. I am of the opinion that for each enterprise there are several compelling reasons for an on-site residential presence. Such reasons constitute an essential need because without an on-site presence I do not believe that the proposed businesses would be viable.
- 2.2 The LPA in their decision notice did not question the financial viability of the enterprises. However, I would like to highlight to the Inspector that the viability of these enterprises depends absolutely upon the prospective tenants being able to live on-site.
- 2.3 Mr. Roger Hitchings of Elm Farm Organic Research Centre has addressed in his proof of evidence the suitability of the site and the soundness of the business plans, matters raised by the LPA in its Statement of Case.
- 2.4 My single proof of evidence covers all three appeals. Some repetition of my original agricultural appraisals is inevitable, since the key points about essential need are the same. However, I have focused on those enterprises with the strongest "out of hours" functional needs, and avoided discussion of enterprises such as the agroforestry plantations, which can on the whole be managed during the course of the day. It should also be noted that alongside the night-time, early morning and late evening essential needs, many other tasks which are not mentioned here will be carried out during the course of the day.

2.5 Overview of the agricultural proof of evidence - The rest of this proof of evidence will address the essential need of the three holdings. In Section 3 I highlight how the nature of mixed ecological smallholding means an on-site presence is essential. The businesses are complex and diverse, and taken together with low levels of technology make the enterprises labour intensive and give rise to the need for a physical presence throughout a very long working day, first thing in the morning, during the evenings and during some nights. Section 4 covers essential needs which are common to all three plots, to avoid repetition. Sections 5, 6 and 7 cover the specific essential needs of each of the three holdings, in the order in which their applications were submitted. I particularly focus on the financial impact on the businesses, if an on-site presence was unavailable to attend to emergencies. In Section 8, I consider the impact of living off-site on the well-being of farmers and growers, who sometimes work a 13 to 18 hour day and then must visit the site during the night for emergencies. I examine this against my own research into the viability of smallholdings and smallholders' well-being referred to in point 1.4 above. Section 9 concludes my proof.

3. The Nature of Small-Scale Ecological Farms

- 3.1 Complexity of businesses – Each holding will rely on several income streams, to enable the prospective tenants to earn a livelihood from a relatively small area of land. The principle behind the design of these businesses is to integrate several enterprises to spread economic risk, even out (as far as possible) the annual workload and income stream. Beneficial links between enterprises are created, so as to manage the land and wider resources, sustainably, and to make efficient use of the space available. For example, the basket and chair making operation proposed by Plot A will provide a winter income and occupation to complement the busy summer market gardening and autumn fruit picking periods. By keeping poultry as well as raising vegetables, the holders of Plot C will have a source of nitrogen rich manure and pest control for the field vegetables, and eggs and point of lay pullets to increase the income of the enterprise. To simplify each business down to one of these elements would be to lose their integrated nature, which is one of the features that make them highly environmentally and economically sustainable.
- 3.2 Choice of technology and design - Ecological smallholdings are careful about their use of technology, and consider its cost, its embodied energy, and the ongoing fossil energy it will use. A primary recommendation emerging from the ELC's research into the viability of existing smallholdings *Small is Successful* (submitted with the application documentation) was to "keep set up costs low". By keeping capital costs low, the growers and farmers studied avoided the need for commercial loans and consequently formed more financially resilient business models. Capital investment is replaced with careful design (for example permaculture design), combining an efficient layout of the site, use of second hand materials where possible and labour/knowledge intensive practices with selectively chosen technologies, which have a low environmental impact. In permaculture design it is acknowledged that people are at the centre of farming/horticultural systems. The emphasis is on the selection of technologies of a scale and cost appropriate to the needs of the holding, and sometimes this may mean using hand labour rather than technology where cost or environmental impacts dictate.

- 3.3 Multiplicity of Needs – It is therefore critical to bring the Inspector's attention to the fact that it is the cumulative needs of the multiple enterprises which mean that they would not be feasible without an on-site presence. Each day on these smallholdings will consist of the juggling of multiple tasks necessary to ensure that plants are watered, weeded, protected from frosts and pests, and harvested, and animals are fed, watered and protected from predators. Many of these tasks can be carried out through the course of a normal working day. However, it is the nature of farming and horticulture that the work does not fall neatly into an 7am to 7pm day, and even routine tasks normally carried out during the day may have to be carried out in the evening or early morning, due to their displacement during the day by some crisis or other.
- 3.4 Marketing – The fact that all three ploholders will be direct marketing their produce adds an extra time pressure to an already busy day, meaning that more tasks need to be done during the early morning or evening. Through direct marketing they will create a link with their customers, supply local markets and obtain better prices. However, successful direct marketing relies on attention to detail to provide a high quality, reliable product which is enhanced by a personal and friendly service. Many vegetables need to be harvested fresh on the day of selling, meaning that picking and preparation of produce must happen before a 9am market or delivery to a retail shop.
- 3.5 Education and Research - A condition of the ELC leasehold agreement is that tenants undertake monitoring of productivity, biodiversity, and water and soil quality to measure the impact of the change in management regime. They will also host educational visits. The longer the tenants are on site and relaxing rather than working, the more effective their observation of birds, insects and mammals will be. Plant species monitoring must happen during the spring and summer, when plants are at an identifiable growth stage. For optimum interest, and (hopefully!) better weather, educational visits will take place in spring, summer and autumn, when there is more to see. Both add extra demands on the tenants at an already busy time of year, meaning that more of their routine tasks will need to take place in the early

morning or evening.

- 3.6 The multiple demands throughout a very long day are well illustrated by Hugh Chapman of Longmeadow Farm in the letter of support he submitted to the LPA:

"Drawing on my twenty-five years of experience I can testify that to ensure the proper running of the proposed smallholdings it is essential for someone to be on site to deal with not only the day to day running of such an enterprise, but also various emergencies that can and will crop up. The nature of plant rearing, pest control, livestock management, harvesting, irrigation, crop inspection, and the day-to-day working practices of a mixed holding need constant attention.

"There are many factors beyond the control of the grower that can affect a potential harvest such as weather and pests, however the effects of these factors can be greatly reduced or removed entirely if there is a human presence on site that can deal with emergencies as soon as they become apparent. Aside from animal welfare issues, I see no reason why the emergencies of a market gardeners enterprise carry less weight than those of a livestock farmer. Our income is reliant on our crops; our crops are, on a regular basis reliant on our experienced observations, and our rapid response to them. The work is not a 9-5 job with a structured daily timetable; it requires people of a certain mettle who are prepared to work outside what many people regard as normal working hours. An 18-hour workload is not unusual".

- 3.7 Mr. Chapman's experiences are supported by Mrs. Jyoti Fernandes of Five Penny Farm (email to PINS 20/11/2012):

"I have 16 years of experience running various small farm businesses ... Businesses like this simply do not work normal working hours. It is your whole life. The work starts early in the morning when you need to get up early for harvesting and watering before the heat gets into the polytunnels to late at night for slug picking, temperature control, lighting, heating, etc..."

There is no way we would have made a success of our holding without living on the land”.

- 3.8 I would like to draw the Inspector's attention to the fact that in seven appeal decisions (Appendix RL/A) Inspectors have acknowledged that the combined needs of low impact smallholdings, designed with sustainability and the provision of local food at their heart, constitute an essential need for a residential dwelling. In all cases, the Inspectors have understood the impracticalities of trying to live sustainably off site and manage a multifaceted agricultural enterprise. As Inspector Symon's states in the decision for Elbow Farm (Appendix RL/B): *“the individual tasks involved in running the horticultural enterprise may not appear so great as to warrant a permanent on site presence. However, taken together the labour commitment is intensive and spread out over the day and night.....without living on site, there is no doubt that the venture would come to an end.....and the supply chain of vegetables built up in the locality would cease. This would be contrary to the NPPF's aim of supporting a prosperous rural economy.”*

4. Essential Needs Common to all Three Plots

- 4.1 To avoid repetition, I have considered the essential needs that apply to all three plots together. Many of these needs have a precedent in having been cited in at least one successful planning appeal decision, and where appropriate, I will refer to these appeals. It should be noted that it is rare in these types of cases for permission to be granted based on a single essential need. Instead, permission is usually granted due to a combination of essential needs.
- 4.2 Seedling Propagation - All three of the enterprises involve propagation of seedlings and the growing of tender crops that require protection from the frost. The degree of protection/heating depends on how severe the frost is likely to be, due to the time or fuel energy required in laying covers or providing extra heat. Weather conditions can vary locally, with a frost being more severe in one place than another, making it difficult to judge the degree of protection needed without being on site. Raising seedlings will give each plot holder greater control over the quality of seedlings and the timing of their availability, compared to buying them in. Details of how tenants intend to raise their seedlings are set out in the individual sections for each plot. Frost protection of seedlings and polytunnel crops is cited in the following appeal decisions: Trevalon Organics (Appendix RL/C), paras 15 and 16; and Woodland Organics (Appendix RL/D), para 16.
- 4.3 Irrigation – For reasons of water conservation it is good practice to avoid irrigating when it is hot or windy. According to the US Department of Agriculture 15-30% of moisture can be lost to evaporation by irrigating at mid-day. The Soil Association standards now state that, “you should water crops in the morning or early evening to minimise evaporation losses”(Soil Association Regulation 4.16.24). It is now a requirement of the Soil Association that growers, “*monitor soil water content on a regular basis to assist with irrigation scheduling; base their scheduling on the soil moisture deficit; and measure soil moisture deficit by direct moisture measurement or by estimation*”
- 4.4 While it may be appropriate for large scale growers to invest in advanced automatic

moisture measurement equipment to maximise efficiency of irrigation, for the small scale grower, such monitoring of moisture content is better done through observation and simple timing devices. The Irrigation needs of holdings are cited in the following decisions: Trevalon (Appendix RL/C), para 19.

4.5 Slug Control – Slugs are one of the most damaging pests for market gardeners, especially inside polytunnels. While different methods of control are possible, most have their drawbacks and are not 100% effective. For example, nematodes, which are used as a biological control for slugs, need a distinct temperature range to be effective and it is expensive to regularly apply them to a whole polytunnel, while diatomaceous earth, wood ash and coffee grounds only work when the ground is dry, and conflict with irrigation regimes. Night-time hand picking is generally agreed to be the most reliable way of reducing the slug population with it being possible to kill 200 in an hour of searching. The timing of slug's emergence to start feeding is dependent on many environmental factors, and it is not unusual to go to a polytunnel one hour after sunset and find no trace of slugs. A slug hunt an hour or two later, in mid-summer as late as midnight, can reveal dozens of them. Especially vulnerable to slugs are seedlings which are being propagated and newly planted seedlings, the loss of which could set a crop back by weeks. Slug protection is cited by Inspectors as one among a number of functional needs in the following appeal decisions Sydling Brook (Appendix RL/E), para17vi; Rosebarn Nursery (Appendix RL/F), para 38; Elbow Farm (Appendix RL/B), para 7.

4.6 Early morning harvesting – Vegetables, especially leafy greens such as salad and spinach must be harvested in the early morning cool, before they start to wilt. Successful marketing relies on the leaves looking fresh and appetising when they reach the customer. Fruiting vegetables in polytunnels, such as tomatoes or cucumbers also benefit from being picked while cool after the night to maximise shelf

life. In recent years, even as early as March or as late as September, temperatures can rise sufficiently by 9 or 10am to cause wilting. Despite the tenants in Plots A and B mentioning a 6 or 6.30am start in their business plans, in my view, such harvesting will often mean a 5am start, since the labour intensive nature of harvesting, quality control checks and packing at this scale means that four hours may be necessary to complete the harvest. Harvesting is likely to take place at least three days per week on each holding, to enable continuity of supply and to sell produce when it is ready. Early morning harvesting was cited, among other functional needs in the decisions for Trevalon Organics (Appendix RL/C), para 19; and Sydling Brook (Appendix RL/E), para 17x.

4.7 Large pests – Deer, rabbits, pigeons, rooks, squirrels and badgers can all cause severe damage to crops. While adequate fencing can go a long way towards minimising damage, a human presence, especially with a dog, can both deter pests and notice damage and nip it in the bud before it becomes a problem. The use of crop covers can provide some degree of protection against pigeons and caterpillars. It is not desirable, however, to leave crop covers on all season, as plants can become elongated and weak as they try to find light. Furthermore, they are time-consuming to remove for regular harvesting, leading to significant inefficiencies. At Woodland Organics, the Inspector accepted that a permanent presence on site would help protect crops against damage from rabbits and birds (Appendix RL/D, para 14 and 16).

4.8 Escaped livestock – This is a potential emergency situation in rural areas, especially when surrounding farms are pastoral. While it is the responsibility of the smallholder to protect their crops as far as is reasonably possible, in the event of cows or sheep escaping into one of the plots, a rapid response would be necessary to minimise damage. Escaped livestock would only be heard by someone present on site and an appropriate response would lie in their rapid judgement of the situation. At particular risk would be the market garden vegetables (from browsing and trampling) and the agroforestry plantations, which are slow growing and might take a long time recover from damage. It is hard to put a precise value on this, as so much depends on the

degree of establishment at the time of damage, the degree of damage and the potential loss of fruiting capacity. Clearly, however, it is a situation best avoided, or minimised if at all possible. Escaped livestock are cited as an essential need in the appeal decision for Sydling Brook (Appendix RL/E), para 17 ix.

- 4.9 Transplants – It is ideal practice to transplant plants when it is cool and still, to avoid stress caused by desiccation before the roots have established. So long as they are watered in, plants will usually survive if planted later on a hot day, but they may not achieve optimum productivity, so early morning planting is a practice to be aimed for. For long-cropping polytunnel plants such as tomatoes or cucumbers, optimal planting conditions (cool, but not cold, and still) will enhance profitability, since loss or stress of such plants would diminish yields for the whole season.
- 4.10 Wind – The main risks during high winds are the polytunnels. While shutting doors and windows can minimise damage by stopping wind getting inside, sometimes it becomes necessary to cut the plastic covers off tunnels to prevent the more expensive frame from buckling. A new polytunnel frame for a 5.5m x 20m tunnel (including irrigation system, which is likely to be damaged if the frame buckles), would cost between £1,000 and £1,500, whilst a new cover would cost between £250 and £500, plus the labour of reskinning the tunnel. This is a decision that would need to be taken on the spur of the moment, by someone present on site, since it would not make economic sense to cut off the covers except in extreme circumstances. Often prompt action, such as parking a tractor to weigh down flapping polytunnel plastic or building a windbreak from straw bales, can prevent greater damage. Wind damage is cited in decisions for the following appeals: Sydling Brook (Appendix RL/E), para 17vii; Trevalon Organics (Appendix RL/C), para 17; and Elbow Farm (Appendix RL/B), para 3.
- 4.11 Snow – In the event of a heavy snowfall preventing any of the plotholders accessing their land, there would be a number of implications:
- All livestock (chickens and ducks) would need to be fed and watered. It is a requirement under The Welfare of Farmed Animals (England) Regulations 2007 that, "animals kept in husbandry systems in which their welfare

depends on frequent human attention must be thoroughly inspected at least once per day to check that they are in a state of well-being" (Schedule 1 Paragraph 2). Laying hens are specified as needed daily inspection in paragraph 1 of Schedule 5.

- Snow would have to be lifted off crop covers (fleece and environmesh) to prevent crops underneath being squashed and damaged by the weight of the snow. This is of particular importance for tender salad crops, such as those in Plot B.
- Snow would need to be removed from polytunnels to allow light in, although arguably in the short term the insulation provided by snow might be helpful. Nevertheless, a heavy snowfall can cause the buckling of polytunnel frames, several dramatic photographs of which I saw following the snows of 2009 and 2010.

4.12 Floods – Climate change is increasing the frequency of severe weather events such as floods, which can occur at any time of year. An impassably flooded road between a local residence and the holding would mean, lengthening the daily journey to and from the holding, which realistically might have to occur several times in a day in certain seasons. This would be particularly problematic for Mr. Boyle of Plot A, who only intends to travel by bicycle.

5. Essential Needs Specific to Plot C

5.1 Overview of Plot C – The business proposal for Plot C is composed of six enterprises, which contribute to the gross income of the whole business as follows by year 6:

- Market garden (18%)
- Polytunnel crops (14%)
- Vegetable nursery (7%)
- Agroforestry (Food products and plant nursery) (44%)
- Processed food (9.5%)
- Poultry (6.5%)

5.2 The strongest specific essential needs exist for the polytunnel crops, vegetable nursery and poultry enterprises, which together constitute 28% of the business income. However, I am strongly of the opinion that without a residential presence the financial viability of the business as a whole would be jeopardised. This is because during the early years while the agroforestry business develops, these three enterprises will make a far more significant contribution to cash flow since they can be established quickly. For example, in year two they will contribute 55% of the gross income.

5.3 It should be noted that these specific essential needs are in addition to those common to all holdings listed in section 4. Irrigation, night-time slug patrols, early morning harvesting, damage from pests and escaped farm animals and extreme weather events such as wind, snow and frosts are all reasons why it is essential to have an overnight presence, and should be considered as a whole alongside those listed below.

5.4 Seedling propagation - One polytunnel will be dedicated to propagating seedlings, both to supply the market garden enterprise and to sell commercially as plug plants.

5.5 It is proposed that a total of 2,800 tomato, pepper, cucumber and courgette seedlings will be raised for sale, plus another 400 for use in the market garden. These need to

be sown in January, to enable the plants to be sufficiently developed to provide an early crop. Cucumbers need a temperature of 28°C to germinate and tomatoes require a temperature of 25°C. Thereafter, they must be kept at a constant 18°C to ensure steady growth. Propagation benches will be heated using a system of hot water pipes, heated using a wood burner, run through a sand tray on which seed trays are placed. Burners will have to be stoked during cold winter nights. This system has been chosen over electrical cables or matting, since it is efficient, simple technology and uses a renewable resource from on site. Although photovoltaic panels will provide limited amounts of electricity, commercial scale hotwire propagation systems use considerable electricity. It is not cost effective to provide sufficient PV panels to meet the demands of such a system in winter. Mr. Dollimore of Hankham Organics has told me that he would now prefer to be using a system of hot water pipes, due to the constant, steady heat they provide compared to electrical heat matting, which cuts in and out with a thermostat to minimise electricity use. Gas heating has also been considered but this would produce more than 11 times the greenhouse gas emissions and would therefore be contrary both to planning policy and the objectives of the farm business. All seedlings will need watering in the early morning or evening, and re-watering during the day if they get dry, and regulation of ventilation on warmer days.

5.6 Polytunnel Crops – As part of the market garden, two medium sized polytunnels will be used to produce tomatoes, peppers, cucumbers and lettuces, income from which will contribute 14% to the total gross income for plot C. Plants for the polytunnels will be raised from seed in the vegetable nursery polytunnel and will therefore be subject to the same risks. Losses of any of the seedlings destined for the market garden would cause a delay in planting, and hence cropping, as would any losses of tomato, pepper or cucumber plants after planting out.

5.7 To benefit from early season premiums, tomatoes and cucumbers are planted in early April. At this stage they must be protected against temperatures below 8°C, including the occasional late frost. Cucumbers are particularly sensitive to damping off diseases just after transplanting, and it is critical that they are kept warm if they are being

planted out early, since large losses can otherwise occur. Mr. Guskov proposes to use a “central heating” system composed of recycled radiators and piping to distribute hot water warmed in a wood burner around the polytunnel on cold nights. During April and even May, night time temperatures drop below 8°C, so I would estimate that the wood burners would need to be lit, and then re-stoked late at night, about 50-75% of the time. Since tomato and cucumber seedlings start growing in December and January, to lose the plants to cold weather or frosts in April or May would be a costly set back, involving not only the replacement of plants (which are likely to be difficult to buy from elsewhere at that scale so late in the season), but also loss of the early cropping potential with its associated higher prices. A months delay in cropping would result in lost sales worth £2,577 (see table 5A). In the autumn, it is freezing temperatures that bring the cropping season of tomatoes and cucumbers to an end, so there also is a season extension advantage to providing night time heat in October and November. Furthermore, although plants such as lettuce, can tolerate frost, low temperatures reduce growth rates and increase the risk of fungal diseases such as botrytis and “damping off”.

Table 5A - Economic Impact of One Month's Delay in Cropping

	Total crop (kg)	First month crop (kg)	Early season price (£/kg)	Mid season price (£/kg)	Value at early season price (£)	Value at mid season price (£)
Tomatoes	760	190	£5.70	£2.45	£1,083.00	£465.50
Pepper	300	75	£8.00	£3.00	£600.00	£225.00
Cucumber	650	162.5	£5.50	£3.75	£894.00	£690.38
Total					£2,577.00	£1,380.88

Price figures obtained from Waitrose, Linscombe Farm (Devon) and Somerset Organic Link (See Appendix RL/G for further detail)

5.8 I have investigated the possibility of the heating of all polytunnels being carried out

by an automated stove, to save the necessity of night-time re-fuelling. An automated boiler would require wood pellets to be used, as opposed to logs that require manual loading. At present, due to shortage of UK supply, wood pellets are often imported from Scandinavia, bringing with them additional emissions costs in transport, whereas logs can be bought from local suppliers, and represent a more sustainable source of energy. An evaluation of the relative merits of the three kinds of boiler is shown in Appendix RL/HL. Furthermore, from Mole Energy the cost of installing an automated wood pellet boiler would be £6,970 for a 15kw stove capable of heating one tunnel. To heat both growing tunnels and the propagation tunnel, either a larger boiler, or three separate ones would need to be installed, increasing the cost of the automated system above the amount budgeted for building a low impact agricultural workers' dwelling (£7,300 for Plot C). According to PINS Case Law and Practise Guide 7 (Paragraph 19), when assessing the merits of an automated system the relative costs of the system should be weighed against the cost of constructing a dwelling as an alternative. In this case, an automated system would appear both to introduce a cost disproportionate to the cost of the dwelling, as well as requiring fuel less easily obtained locally than the proposed self-built, manual system requiring overnight re-fuelling.

5.9 Transplanting – Transplants grow best when planted during the cool of the morning or evening, when they are less likely to wilt while adjusting to their new position. This is particularly the case inside a polytunnel, when temperatures on a sunny day can rise rapidly. Due to their long cropping period, it is essential that tomatoes and cucumbers are planted in optimal conditions to ensure that they survive and grow well. A stressful early period following transplanting would delay production, with the potential forfeit of early high prices.

5.10 Poultry Enterprise - The poultry enterprise proposed by Mr. and Mrs. Guskov represents 7% of the holding's total gross income. It is comprised of three main elements: A laying flock of 80 free range hens; A rare breed pullet raising enterprise, producing each year around 130 point of lay hens for sale in addition to 80 replacement birds for the laying flock; 210 meat cockerels and 40 Christmas geese

raised per year during the first two years.

- 5.11 The three reasons why the poultry enterprise requires an overnight presence are to attend to the chick incubation, to protect the laying flock and the maturing pullets against predators, and for security close to Christmas to prevent the theft of the geese. This last is a minor reason, since Mr. and Mrs. Guskov only intend to keep geese in the first two years, but is nevertheless a risk which could incur a loss of £1,160, representing over 25% of the businesses' income in the first year. At a time of financial austerity, the theft of Christmas poultry is increasing, and it would not be cost effective for the prospective tenants to invest in security equipment, such as infra-red beams and alarms, for an enterprise they intend only to run for two years. The purpose of this enterprise is to manage surplus grassland until it is needed for crops, and to create an extra cash flow in the first two years.
- 5.12 The pullet raising enterprise is intended to supply a market for rare breed point of lay pullets. Egg incubation is a delicate process, requiring frequent monitoring of the temperature and humidity of the eggs, followed by the heating of the newly-hatched chicks. There is a risk that the chicks will overheat, as much as die of cold, if the heating system does not act as predicted. Due to the site being off-grid, the electricity to power the heat lamps will come from renewable energy sources, and the incubation will require more diligent monitoring than a mains system. The wood burning stove that will keep the chicks warm from three weeks old will also need regular refuelling. A back-up bio-diesel generator is also available if the renewable options fail. I have been advised by a professional organic poultry rearer that a more reliable option for keeping young chicks warm is to use a gas heater, of the type used by pheasant rearing operations. However, even these need regular checking at night, especially when the chicks are small or there is a wind blowing. They also use a non-renewable fossil fuel, while wood is a locally available, sustainable alternative. In total 340 chicks will be raised each year (divided into 3 batches), and this would be too large a number to keep in a domestic (probably rental) situation were Mr. and Mrs. Guskov unable to live on site.
- 5.13 I have calculated the financial losses that would be incurred were one batch of eggs

to fail (see Table 5B below). A loss of £1,348 (if all the meat and pullet chicks in one batch were to die) would make a big impact on the business, as would even a 50% loss. Not only would there be a loss or delay in sales of pullets and meat birds, but the replacement birds for the laying flock would not be available, reducing the flock's laying capacity (see below). It is important that point of lay pullets are ready on time, since it is in spring and early autumn that people want to buy new hens. More eggs would also have to be removed for incubation, meaning a further loss of egg sales. Incubation is a labour intensive process, and any lost eggs, chicks or pullets, represent a waste of valuable time, since the process would have to start again from scratch.

Table 5B – Financial impact of loss of chicks due to cold or overheating

	Nov	Mar	Aug	Total no.	Value/unit	Value of 100% loss
No.eggs incubated	250	250	100	600		
No.chicks after assumed losses	175	175	70	420		
Meat birds (£8/pullet)	£699.00	£699.00	£280.00	210	£8.00	£1,680.00
Point of lay pullets	£649.00	£649.00	£260.00	130	£12.00	£1,560.00
Geese			£40.00	40	£50.00	£2,000.00

5.14 Finally, it will be necessary to guard both the laying hens and the maturing pullets (who will be kept on the holding for four months), against predators such as foxes and badgers. While a secure hen house should be sufficient to protect the birds at night, they will be vulnerable to attack at dusk before they have gone to roost. Any hens that are attacked by the fox will have to be replaced, which would take 24 weeks (including incubation and maturing to point of lay), meaning the loss of 10.78 dozen eggs which would have been laid during that time. At £1.20/dozen this represents

£12.94 worth of eggs lost per bird killed. In my opinion, the price of eggs quoted in the business plan is very low at £1.20, and it would be possible to retail them for £2.50/dozen. At this price the loss of laying capacity per hen taken by the fox would be £26.95. If a fox were to go on a killing spree, and kill 10-15 hens, £323.40-£485.10 worth of egg laying capacity would be lost until the hens could be replaced. As important as the financial loss is the fact that supply would be interrupted. Continuity of supply is vital in maintaining a good reputation with retailers, and there is a danger that outlets or direct customers could be lost if the business is seen as being unreliable. Loss of the pullets to a fox or badger would be even more costly, since no revenue would yet have been gained from these birds.

Table 5C: Summary Table of Essential for Plot C Need on a Daily/Annual Basis

	Spring	Summer	Autumn	Winter
Polytunnel crops	<ul style="list-style-type: none"> - Guard newly planted tomatoes and cucumbers against frost (Apr-May) - Protection of tunnels against wind damage 	<ul style="list-style-type: none"> - Early morning irrigation supervision (6am-9am) - Harvesting produce when cool (June-Sept, 6am-9am) - Transplanting crops when cool 	<ul style="list-style-type: none"> - Tend burners to extend season of tomatoes etc (Oct-Nov) - Protection of tunnels against wind damage 	
Vegetable Nursery	<ul style="list-style-type: none"> - Propagation of seedlings, guard against frost - Late night slug picking to protect seedlings 	<ul style="list-style-type: none"> - Late night slug picking 		<ul style="list-style-type: none"> - Propagation of tomatoes, peppers and cucumbers (Dec-Feb)
Poultry	<ul style="list-style-type: none"> - Egg incubation (March) - Heat for chick rearing (Apr-Jun) - Shutting poultry in (6-8pm) 	<ul style="list-style-type: none"> - Egg incubation (Aug) - Shutting poultry in (9.30pm) 	<ul style="list-style-type: none"> - Chick rearing (Sept/Oct) - Shutting poultry in (6-8pm) 	<ul style="list-style-type: none"> - Egg incubation (Nov) - Heat for chick rearing (Dec/feb) - Poultry care in event of snow or flood preventing access to site - Security of Christmas geese.

6. Essential Needs Specific to Plot A

6.1 Overview of Business – Plot A has a business plan made up of six enterprises who contribute to the overall gross income in the following proportions:

- Annual vegetables (68%)
- Willow chairs and baskets (15%)
- Small scale grain production (6%)
- Fruits (6%)
- Nuts (3%)
- Juices (1%)

6.2 Annual vegetables – The majority of the income for Plot A will come from mixed vegetable production on one acre of land, to supply a box scheme. This form of direct marketing requires careful crop planning to ensure that boxes are filled with 7-12 different vegetables, with sufficient variety from week to week, but a steady supply of staples. In all, between 45 and 50 lines of vegetables tend to be cultivated by a typical box scheme grower who aims to fill boxes with their own produce. Vegetables must be of sufficient quality to meet customers' expectations, since the customer is unable to choose each individual variety, and may take their custom elsewhere if the whole box is let down by the quality of one crop. It is thus essential that detailed care and intensive labour is invested to ensure that crops are ready on time, and are protected from pests and diseases.

6.3 It should be noted that these specific essential needs are in addition to those common to all holdings listed in section 4. Irrigation, night-time slug patrols, early morning harvesting, damage from pests and escaped farm animals and extreme weather events such as wind, snow and frosts are all reasons why it is essential to have an overnight presence, and should be considered as a whole alongside those listed below.

6.4 Protection of outdoor crops – Outdoor crops most at risk from wild animals are carrots, sweet corn and squashes, all of which can be devastated by badgers in a

single night. Sweet corn is most vulnerable to attack just before harvest, when it is perfectly ripe. Extra protection against badgers can be provided by erecting an electric fence, with an alarm system to indicate a breach, to alert the sleeping grower to come and protect their crop. Only an on-site presence could act in time to prevent serious damage.

6.5 Cultivation of polytunnel salad crops – The propagation of tomato and cucumber seedlings, and their subsequent protection from frost after transplanting will require the vigilant use of fleece. Since fleece is time-consuming to apply and take off in the morning, and restricts airflow and light, it is only worth applying it when there is a real risk of frost. A judgement of whether or not to use fleece may need to be made late in the evening, if cloud clears unexpectedly. I refer the Inspector to the appeal decision Woodland Organics (Appendix RL/D), quoted in paragraph 7.5.

6.6 Impact of crop losses - While the financial value of for some individual crops may not amount to a huge amount the impact on the box scheme would be much greater. This is because crops such as tomatoes, cucumbers, carrots and squash are regarded as staples. If cultivation is unsuccessful these crops would either be absent, or have to be bought in. The latter would be problematic for a box scheme whose marketing emphasis is on the non-use of fossil fuels, since wholesale organic produce would probably have been produced by diesel tractor and transported some distance. If replacement becomes a regular habit, due to crop failure, customers would start to lose faith in the scheme's claims. At a time when many box schemes are simply convenient retail delivery schemes, buying in the bulk of their produce, the home produced scheme has a marketing edge, since it can genuinely claim lower food miles for the produce. Furthermore, since the tenant does not intend to use a vehicle, for environmental reasons, collection of bought in vegetables would be difficult unless an organic wholesaler could be found nearby.

6.7 Willow chairs and baskets – This enterprise will rely on the production of long, straight withies. If the willow is browsed by rabbits or deer whilst growing, it will cause the stem to fork, so protection from browsing animals is a necessity. I have checked Mr. Boyle's figures against those in the Somerset willow industry, and his

projected yield of 7.5 tonnes (7,500 kilos) from 1.5 acres appears accurate. Based on a retail price of prepared basket willow of £5/kg (Somerset Willow Growers www.willowgrowers.co.uk), the total value of his crop before it is made into baskets is potentially quite significant at £37,500. It would be unrealistic to expect him to match the price of an old and well established company with a national customer base for website sales. However, this demonstrates that as his skill at harvesting and preparing the willow develops, an income could be derived from local sales of willow bundles as well as the value added produce. This makes it all the more important that the willow should be protected from deer. While fencing can keep them out, significant damage could be done by a single deer in a night, which could be stopped if noticed in time.

- 6.8 Small-scale grains – This is an experimental enterprise that fits into a wider movement of permaculture research to find less energy intensive ways to produce staple food products. Although its financial contribution to the business is small, its contribution to the research aims of ELC is significant. One risk with small-scale grain production is destruction by badgers when they approaching ripeness and it will may necessary to protect the area with electric fence, connected to an alarm, to alert Mr. Boyle to an attack.
- 6.9 Ducks and Chickens – Mr. Boyle intends to keep ducks and chickens for domestic consumption. These will have similar requirements to poultry enterprise in Plot C, albeit on a significantly smaller scale.

Table 6A: Summary Table of Essential Needs for Plot A on A Daily/Annual Basis

	Spring	Summer	Autumn	Winter
Polytunnel crops	<ul style="list-style-type: none"> - Fleece newly planted tomatoes and cucumbers against frost (Apr-May) - Wind protection of polytunnels 	<ul style="list-style-type: none"> - Early morning irrigation supervision (6am-9am) - Harvesting produce when cool (June-Sept, 6am-9am) - Transplanting in cool (early am or late pm) 	<ul style="list-style-type: none"> - Wind protection of polytunnels 	<ul style="list-style-type: none"> - Cover polytunnel crops with fleece in the event of an unexpected frost.
Vegetable Nursery	<ul style="list-style-type: none"> - Guard seedlings against frost - Night-time slug patrol 	<ul style="list-style-type: none"> - Night-time slug patrol (10-12pm) 		<ul style="list-style-type: none"> - Propagation of tomatoes and cucumbers - Night-time slug patrol
Poultry	<ul style="list-style-type: none"> - Shutting poultry in (6-8pm) 	<ul style="list-style-type: none"> - Shutting poultry in (9.30pm) 	<ul style="list-style-type: none"> - Shutting poultry in (6-8pm) 	<ul style="list-style-type: none"> - Snow or floods could prevent easy access to site, yet for animal welfare reasons poultry must still be fed, watered and let out
Willow	<ul style="list-style-type: none"> - Vigilance against deer in the willow area 	<ul style="list-style-type: none"> - Vigilance against deer in the willow area 		
Nuts and grains		<ul style="list-style-type: none"> - Guard grains against badgers 	<ul style="list-style-type: none"> - Guard against squirrels 	

7. Essential Needs Specific to Plot B

7.1 Overview of Business – The business plan for Plot B is made up of 5 enterprises, which contribute by the following percentages to the overall income of the business in Year 7:

- Salad and herb bags (66%),
- fruit condiments (18%),
- fruit juice (3%),
- eggs (3%)
- and beeswax based cosmetics (10%).

7.2 Of these, the main essential need lies in the cultivation and harvesting of the salad leaves and tender herbs, together with predator protection of the flock of Maran laying hens. It should be noted that in the early years of development, the salad and herb business will play an even more significant role in contributing towards cash flow, generating 78% of income in year 4 and 74% in year 5. It is thus vital to the viability and development of this business that this core enterprise achieves the income targets set.

7.3 It should be noted that these specific essential needs are in addition to those common to all holdings listed in section 4. Irrigation, night-time slug patrols, early morning harvesting, damage from pests and escaped farm animals and extreme weather events such as wind, snow and frosts are all reasons why it is essential to have an overnight presence, and should be considered as a whole alongside those listed below.

7.4 Salad Business – The business plan indicates that by year 5, an average of 140 salad bags per week will be being sold throughout the year. Without heated polytunnels, it is likely that production will be skewed to supplying more salad during the spring, summer and autumn, but that the premium price that can be charged for winter salad makes it worth trying to maintain supply of a small number of bags through the winter through judicious use for horticultural fleece. For example, in Somerset, I have

records of prices of £18.60/kg being charged for salad leaves in January, compared to £10-£14/kg in June.

- 7.5 A successful salad enterprise relies on careful succession planting, to ensure continuity of supply of a sufficient variety of leaves throughout the year. Night-time slug patrols are particularly important, since each tray of seedlings lost to slugs means a gap in the cropping cycle, since both seedlings in trays and those planted outside or in the tunnel are small and vulnerable to attack. It would therefore be necessary for someone to return to the site at 11pm or midnight, when the slugs are active. Living on site means that if the slugs aren't out on the first patrol another, later, trip out can easily be made. Salad harvest might begin at 6am to ensure leaves are cool and moist, or even 5am during the summer. Packing the salad must be integrated with irrigating the tunnels, and watering outside plantings. On mornings when salad is not being harvested, this early morning slot will be used for planting seedlings. In winter, both outdoor and indoor salads can be protected from the worst effects of frost by covering with horticultural fleece. Here, I draw the Inspector's attention to the planning decision at Woodland Organics (Appendix RL/D), a field vegetable operation, which acknowledges in paragraph 16 that: *"If crops were to be fully protected against serious loss through frost damage without a full-time presence on site, there would be several hours of lost productive time taken up by the work of covering and uncovering crops, which would be abortive on each occasion when a local frost did not materialise"*. The strategy for production of outdoor winter salads is to have as many plants growing as possible, to spread the picking load between plants, so laying fleece would indeed be a time consuming operation on Plot B.
- 7.6 Herb Business - Like the salads, tender herbs such as basil, tarragon and parsley need to be picked early in the cool of the morning in order to retain their fresh appearance when they reach the market. Packing herbs for market will be more time consuming than the salad leaves, since they will need to be bagged and labelled separately. I anticipate that 3-4 hours or more will be needed for picking both salad leaves and herbs most mornings of the week throughout spring, summer and early autumn, starting at 5am, to achieve salad sales to the value of £14,000.

7.7 Eggs – The flock of laying hens is of a modest size at 40 birds, but these will nonetheless need protection from predators. As is typical for poultry enterprises, hens will go to roost at dusk, after which they will need shutting in. Although this would not need an on-site presence in the winter, as they would roost at 4.30-5pm, during spring, summer and autumn someone would need to be on site in the evening to as late as 10pm.

Table 7A: Summary of Essential Needs for Plot B throughout the Year

	Spring	Summer	Autumn	Winter
Salad and herb enterprise	<ul style="list-style-type: none"> - Irrigation (early am and late pm) - Harvesting and packing leaves while cool (5-9am) - Late night slug patrol for seedlings and newly planted salads (8-10pm) - Cover salads with fleece in event of unexpected frost - Transplant seedlings when cool (early am and late pm) - Wind protection of polytunnels 	<ul style="list-style-type: none"> - Irrigation (Early am and late pm) - Harvesting leaves while cool (5 – 9am) - Late night slug patrol to protect salads (10-12pm) - Transplant seedlings when cool (early am and late pm) 	<ul style="list-style-type: none"> - Harvesting leaves while cool (5 – 9am) - Guard crops against escaped farm animals - Wind protection of polytunnels - Cover crops with fleece in event of unexpected frost. 	<ul style="list-style-type: none"> - Cut loose plastic on polytunnel on windy night to prevent frame buckling. - Remove snow from polytunnels and outside fleece covers to stop salads being squashed. - Cover polytunnel salads with fleece in the event of an unexpected frost.
Laying hens	<ul style="list-style-type: none"> - Shut in hens (6-8pm) 	<ul style="list-style-type: none"> - Shut in hens (9.30 - 10pm) 	<ul style="list-style-type: none"> - Shut in hens (6-8pm) 	<ul style="list-style-type: none"> - Feed and water hens on days when snow, ice or floods make

				roads impassable (Nov-Feb).
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8. Smallholder Well-Being and Long-term Viability

- 8.1 It is the needs of the enterprise, rather than the preferences of the smallholder that dictate whether or not a dwelling should be granted permission. However, I believe it is unrealistic to discount practical needs as pure personal preference, since to deny them compromises the well-being of the smallholder.
- 8.2 For example, when it is necessary for the smallholder to be on site at 5 am and evening duties require them to be present at 10pm (a stretch of 15 hours), if living off-site they are faced with the choice of staying on site all day or travelling to and from the site on two or three return journeys. Staying on site would involve eating all three meals on-site. As a one off situation, this is not unreasonable, but to do this daily or even several times every week, would become exhausting and extremely disruptive, especially if the plot holder has a family. Add to this night time duties, such as slug picking, and it is barely worth them going home. A green option, should they live close enough, is to cycle from home to the site, but if this is to be done two or three times in a day, on top of hard physical work, it would soon become impractical. Yet the alternative, to drive to and fro, has the impact of generating greenhouse gases.
- 8.3 The research for my book, "Surviving and Thriving on the Land" was undertaken with the express intent of discovering what makes for a land-based holding that is truly sustainable, not only in terms of environmental and economic aspects, but also in terms of human welfare. At all the holdings/communities where residents were "Thriving" they were living on-site. Conversely, I interviewed two smallholders who were unable to live on-site, and in both cases (Laughton 2008, p283) both their health and family life had been severely compromised. One couple had eventually given up market gardening, which the other felt that their teenage daughters' health had been adversely affected by the amount of time they had to spend away from home. The latter couple only lived ten minutes walk away. Granted, there are examples of market gardeners succeeding whilst not living on site, but in my experience most of these are, or have been, supported by external funding which has removed the

pressure to make the business pay sufficient to cover the costs of local rent during the early start up period.

- 8.4 Earning a land-based livelihood is a demanding and stressful occupation, and most people embark on it out of a desire to take positive environmental action (Laughton 2008, p72). Economic viability can be attained, but relies on achieving a delicate balance of bringing in sufficient income from the land-based activities and keeping subsistence costs low. Living on-site aids this process immeasurably, since it removes some of the overheads of living in a rented house, and having to pay electricity, water, gas and oil bills. When the home is at the centre of the holding, domestic life and farm life can be seamlessly interwoven, while minimising environmental impact from using renewable resources.

9. Conclusions

- 9.1 Overview – In this proof of evidence I have carefully examined the three business plans to evaluate whether I believe there is an essential need for the plot holders to live on site. For each enterprise I have asked the question, “What would be the financial implications for the business as a whole were there not to be a night time human presence?” In making this evaluation I have considered the financial contribution that the enterprise makes to the gross income of the business, and the combined seasonal requirements of all the essential needs.
- 9.2 A New Way of Farming – All three holdings proposed for Greenham Reach are small scale, labour intensive businesses that rely on careful design and detailed management. This style of farming can achieve high yields and profit off a small acreage, due to the level of attention and labour that is invested in the business. It is in contrast to industrial farming, which looks to minimise labour through employing machinery, fossil fuel energy and chemical fertilisers and pesticides. Such small scale, labour intensive businesses are emerging in response to the environmental and economic problems associated with industrial farming, such as high fossil fuel dependency, reliance on subsidies, soil erosion and compaction from heavy machinery, biodiversity loss and pesticide pollution. Furthermore, unlike industrial farming, which produces for the commodity market, holdings such as those at Greenham Reach focus on meeting local demand for a variety of food, wood and fibre products, and can potentially turn a large profit from a small acreage.
- 9.3 Attention to detail – Profitability for small, local agricultural/horticultural businesses relies on attention to detail to ensure a reliable supply of high quality products. It is possible to achieve a premium price on products such as salad, unusual soft fruit (as will be produced from the agroforestry elements of the businesses) or rare breed hens. However, that premium is earned by the sheer hard work of ensuring that produce is picked regularly (tomatoes, cucumbers, French beans) or on time (fruit and nuts), delivered quickly and that it is of a high quality (vegetables, especially leaves, are fresh; processed products produced in safe conditions and presented attractively). Retailers, restaurateurs, hoteliers and caterers are all keen to use local produce, but

they will only continue to buy if they are offered a reliable, convenient service and a high quality product. Unfortunately nature is not always so kind, sending severe weather, pests and diseases. The small, organic producer is in the awkward position of acting as an interface between the land, with all its unpredictability, and the customer, who expects convenience, reliability and a reasonable price. It is the full-time focus and hard work of a knowledgeable smallholder that makes it possible for local food production to turn a profit. For inexperienced smallholders, it is even more important to be present, to attend to the mistakes that will inevitably be made in the early days.

- 9.4 The Needs of the Holding – The success of holdings such as these relies on achieving maximum efficiency in terms of human energy invested to create a high return, and for reasons outlined throughout this proof, this is best achieved by the smallholder living on site. I draw the Inspector's attention to the letter of support from Mr. Charles Dowding, a successful grower of organic salad leaves, who says, *"Making a living off small areas of land demands a lot of time and at many different times, for which living off site is impractical. Living on the land saves both time and money, the land workers' most precious assets, enough to make all the difference in demanding work."* At a time when small scale growers are having to compete with food costs subsidised by cheap energy and the acceptance of environmental damage as a side effect of industrial farming, the economics of small-scale farming are delicate, and viability relies on the efficiency brought about by living on site.
- 9.5 Firm evidence of essential need – I have set out in full why I believe that each of the proposed agricultural and horticultural operations require someone to live on the land. I do not believe they would function as viable businesses without an onsite presence. For these reasons, I conclude that it is the needs of the holding, rather than the preferences of the residents that require permission for agricultural workers dwelling.

Appendices to this Proof

- RL/A Table of Relevant Appeal Decisions
- RL/B Decision Notice, Elbow Farm, APP/U1105/A/12/2170250 and 2170162
- RL/C Decision Notice, Trevalon, APP/K0805/C/07/2058055 and 2058053 and 2058497
- RL/D Decision Notice, Woodland Organics, APP/P1133/A/00/1047441
- RL/E Decision Notice, Sydling Brook Farm, APP/F1230/C/07/2055628
- RL/F Decision Notice, Rosebarn Nursery, APP/J9497/C/11/2149857 and 61
- RL/G Price analysis for selected protected crops
- RL/HI Mole Energy, Wood Biomass Boilers, <http://www.moleenergy.co.uk/>
- RL/JK Decision Notice, Ourganics Evolving Systems, 1/D/09/001292