

PROOF OF EVIDENCE of ROGER HITCHINGS BSc

**Appeal reference numbers: APP/Y1138/A/12/2181807,
APP/Y1138/A/12/2181808, APP/Y1138/A/12/2181821**

Greenham Reach Smallholdings

Consultant: Roger Hitchings BSc
Telephone: 07980 579444
Emails: roger.h@organicresearchcentre.com
roger@dower.idps.co.uk

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2 Plot A

- 2.1 This small holding is proposed for the higher part of the overall site and comprises most of a single field with a total area of 2.34 hectares (5.8 acres). Proposed enterprises include mixed agroforestry with an emphasis on orchard production, annual vegetable production, willow production and a small area of grain crops.
- 2.2 At the time of the site visit rushes could be seen although not across the whole field – they were more prevalent on the flatter upper ground and less so on the sloping area. Examination of the submitted photographs suggests that there has been a significant increase in rushes in the period 2009 to 2012. Changes in land management are likely to have contributed to this increase.
- 2.3 Several 30 cm deep holes were dug across the field for the purposes of evaluating the suitability for the planned cropping operations. In general terms these showed the soils to be moderately stony and in a textural class of silty clay loam grading towards clay loam. These are therefore finely textured soils with a topsoil depth in the range 25-27cm (10-11 inches).
- 2.4 Surface compaction was a common feature of the soil profile in every hole that was dug across this plot. In general terms the first 5cm (2 inches) of the topsoil was compacted into a layer with no obvious structure. This is an inevitable consequence of livestock grazing on fine-textured soils in the western half of the UK and I have seen this on hundreds of farm visits. It is not a fundamental flaw and can easily be remedied once its existence is recognised.
- 2.5 Below this superficial layer the soil is in very good condition across much of this plot including the areas marked for willow and market garden produce along with part of the agroforestry area. From 5cm (2 inches) down to the base of the topsoil layer at 25cm (10 inches) the soil is friable, well-structured and well-drained. The colour and smell of the soil shows that it is reasonably well-aerated despite the existence of the surface compaction.
- 2.6 The condition of the soil in the higher part of the agroforestry area is not so good. It is less friable at depth and less well aerated suggesting that drainage in this area is slower. There is more rush in this area although it is relatively young and not well established. Appropriate remedial action can be taken to address this issue as will be described below.
- 2.7 The soil analysis for this plot is extremely encouraging. It shows a good to excellent level of fertility for all the important nutrients with the exception of sulphur, a nutrient that is often overlooked in fertility assessments but is important in protein synthesis. This can be readily addressed using inputs that are approved for use in organic systems and would thus comply with the requirements of the tenancy agreement.
- 2.8 Overall the soil is very suitable for the proposed enterprises given the approaches that have been set out in the application. Any development of cropping areas (vegetables, grains, etc.) will address the surface compaction through initial cultivations and prevent its return through the use of mulching and no-dig methods.

Willow can be planted straight into these soils without any remedial action although mulching would be helpful. Some of the tree species proposed for the agroforestry could probably cope with the slightly poorer soils in the higher part but the recommendations by others for sub-soiling are endorsed providing it is done following a dry spell. This would provide lines of improved drainage that could be used as planting lines.

- 2.9 This part of the site slopes fairly gently and this does not pose any particular issues. All the tree based crops will manage perfectly well on sloping ground and the annual cropping areas will be fine providing the beds are orientated with the prevailing contours.

3 Plot B

- 3.1 This plot will occupy most of the southernmost field along with a strip of the upper field adjacent to Plot A. Proposed enterprises include salad leaf/culinary herb production, a large agroforestry area that will focus on fruit and perennial herb production, and a small laying hen operation.
- 3.2 Rushes were present across the main field area and some of these appeared to be more strongly established than elsewhere on the site suggesting some deeper seated drainage problems. The distribution of the rush was not uniform.
- 3.3 Holes were dug across all the proposed areas and the soils examined. The soils were very similar in texture to those of Plot A but the degree of stoniness reduced to virtually zero at the lower end of the plot.
- 3.4 Surface compaction was seen right across the plot to the same degree as Plot A.
- 3.5 The soil below the surface compaction was in good condition (friable and well-structured) even in areas of thick rush growth. This strongly suggests that the rush growth is more associated with a surface problem as opposed to deep seated drainage issues. Grazing livestock in wet conditions leads to the surface compaction as described and this favours the germination of rush seeds which will be widely distributed in the area.
- 3.6 The soil analysis shows that the soil across the plot has a good to excellent level of fertility with sulphur being the only concern. Such fertility levels should ensure the vigorous establishment of both annual and perennial crops.
- 3.7 Despite what might at first glance appear to be a potentially discouraging situation this soil and this plot are very well suited to the proposed cropping plans. The siting of the annual cropping area in the upper field is a wise move given the shelter provided by the hedge. The use of sub-soiling in the main agroforestry field would be useful although not essential – most tree and other species should establish fairly well.
- 3.8 The main field in Plot B slopes more steeply than that of Plot A but is not excessive and is unlikely to cause any problems with establishment or subsequent management. See paragraph 2.9 above.

4 Plot C

- 4.1 This is by far the most complex part of the overall site and it runs from the higher ground right down to the side of the River Tone via what are quite steep slopes in places. It includes a strip of the field occupied by Plot B. Proposed enterprises include salad/vegetable production, vegetable/herb plant sales, agroforestry with a focus on fruit, point of lay poultry, and preserves.
- 4.2 The slopes were clear of rushes while the meadow by the river had patches of thick rush and patches of clear grass areas. The riverside land was not uniformly level and the rushes tended to be associated with the lower areas.
- 4.3 A number of holes were dug and these focused on the areas proposed for market garden and agroforestry. The soils for much of the market garden area are very similar to those of plot B given that these two holdings will share the southernmost field – see paragraphs 3.3 – 3.5 above for comments.
- 4.4 The soils in the meadow area were free of stones and were more finely textured in general terms – they were clay loams in the main. Aeration and friability below the surface compaction layer (found here as elsewhere) tended to vary with the prevailing vegetation. Good condition, friable soils were found under grass and less well aerated soils in the lower rush areas. Some areas of rush closer to the plot B ground had good condition soils.
- 4.5 The soils on the steeper slopes were not investigated to the same degree. They will be of a similar type to the other areas but will be shallower owing to movement down the slope over the years. All the visual evidence suggests that they are very well drained.
- 4.6 The soil fertility analysis for this plot is very encouraging although it is down slightly in some aspects compared to the other plots. Once again sulphur is showing a significant deficiency that will need to be addressed.
- 4.7 This is a more complex situation so each enterprise element will be dealt with separately.
 - 4.7.1 Market Garden. This proposed for the side of the sloping field shared with Plot B and an area of flatter ground to the south end of the meadow. The soils on the slope are suitable for annual cropping subject to the use of contour orientated beds and the adoption of no or minimum tillage approaches. Part of the meadow area has some thick rush clumps although the soil is in good condition in these areas. The grassed areas can be brought into production fairly quickly subject to minimum tillage methods while the rush will have to be removed before cropping. A new hedge is proposed for this area and this should include the provision of a ditch to assist drainage at the bottom of the main slope.

- 4.7.2 Orchard. The orchard planned for the slope is feasible as trees can adapt well to these conditions provided they are securely established.
 - 4.7.3 Soft fruit. The soil in this proposed area at the northern tip of the holding is suitable for both bush and cane fruit but attention should be given to shading and frost pocket issues.
 - 4.7.4 Free-range poultry. This area is perfectly suitable although the periodic drainage/spring outflow from the bank will need to be re-directed.
 - 4.7.5 Poly-tunnels. A riverside position for these is not an obvious choice but the ground rises sufficiently to accommodate the number and area proposed. The soil in this area is in good condition and is well drained.
 - 4.7.6 Silvopastoral Agroforestry. Suitability will be determined by the choice of tree species and where they are sited. Drainage and soil condition varies across this area so careful consideration of species choice will be important. A certain amount of ditching can be carried out but some areas will only be able to carry alder, willow and other wet tolerant species. The inclusion of the term pastoral implies livestock but this land should not be used for grazing other than by free range poultry.
- 4.8 Reference has been made to the variation of slopes and gradients and these have been taken into account in the planning for this smallholding. The conservation grassland is to be left untouched in cropping terms while the orchard will be viable provided care is taken with the establishment of the trees. The market garden on the gentler slope is feasible provided the same precautions are taken as for other plots i.e. contour orientation of beds and minimum tillage.

5 Additional comments

- 5.1 Detailed enterprise proposals have been set out in the planning applications and applicants have noted that changes may be required as the various enterprises develop. In other circumstances these could be dramatic and could change the whole ethos of the development. In this particular case the existence of an overall land management plan that tenants must comply with should guarantee that activities continue to be environmentally sensitive going forward.
- 5.2 A detailed review of the business plans lies outside the brief of this report but I have examined the figures. I can confirm that they are consistent both with the Organic Farm Management Handbook (to which I was a major contributor) and figures from a range of similar enterprises with which I have been involved.
- 5.3 The early business strength for all 3 plots will come from early and vigorous development of the quick return enterprises such as vegetables, salads, herb leaves, eggs, etc. The predictions for these areas are reasonable and they could outperform the predicted returns.
- 5.4 It is not so easy to be as precise about the perennial crops particularly the tree fruit crops that will feature in each of the three enterprises. I have no doubt that these will establish and will generate returns broadly in line with those that have been

predicted but there may be issues over the timing as the applicants themselves have pointed out.

- 5.5 The strength of the business plans lies in the fact that each is based on a mixed enterprise with elements that will give quick returns and elements that will mature over a period of years. This diversity will stand each of the businesses in good stead by providing resilience and security over the medium term.

6 Conclusions

- 6.1 These applications have involved a lot of careful planning with input from a wide range of expertise. A high level of site sensitivity has been applied throughout.
- 6.2 The soils on this site are suitable for all the proposed enterprises subject to a relatively low level of remedial work.
- 6.3 The fertility levels are very good across the whole site with the exception of low sulphur levels throughout. These can be addressed within the requirements of the land management plan.
- 6.4 The presence of sloping ground should not pose any problems subject to appropriate management methods being used. These are set out in the relevant applications and in the overall land management plan.
- 6.5 Providing the proposed methods are implemented and the land management plan adhered to there should be no increased risk of run-off or pollution. It is likely that the working of the upper fields for arable crops in the past posed a greater risk than the mixed environmentally sensitive approach that is proposed.

Roger Hitchings BSc (Hons) PGCE(FE)

DISCLAIMER: In undertaking this work, I have based my advice on the figures and information provided by the client or its representatives, the responsibility for which rests with the Client. I have taken reasonable steps to ensure that the advice offered is accurate and applicable to the client's circumstances.