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Erection of Grain, Straw and Machinery Storage Buildings with Associated Hardstanding for Bale Storage

at

**Pwll y Darren Farm
Welsh St Donats
Cowbridge
Vale of Glamorgan
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1 Introduction

- 1.1 Reading Agricultural Consultants (RAC) is instructed by Mr Nigel England, of R & A England to provide an agricultural justification statement for a planning application for the erection of grain, straw and machinery storage buildings and an associated hardstanding for bale storage at Pwll-y-Darren Farm, Welsh St. Donats, Cowbridge, CF71 7SS, known as 'Site 1.'
- 1.2 This statement sets out an assessment of need for the proposed buildings and hardstanding yard. The buildings are important in terms of the ongoing commercial development and viability of the cereal enterprise on the farm as well as meeting important storage standards to enable marketability of the cereals.

2 Background

- 2.1 Pwll-y-Darren Farm is the agricultural base for R & A England farming operations which extend to 123.3 hectares (305 acres) of land, mostly located at the Pwll y Darren site. However, unusually for a farm of this size there are no associated farm buildings of any appreciable size, including no grain or straw storage facilities. Machinery is currently stored in industrial buildings owned by the applicant at Llandow, some 7 miles distant.
- 2.2 The other buildings referred to above are approximately 1km north of the application site, known as 'Site 6'. These buildings measure 22.9m x 13.7m (314m²) and are diminutive compared to the size of buildings required to meet the farm's needs.
- 2.3 The absence of grain and straw storage means that the applicant is a 'price taker' in that he has to sell the produce at harvest, rather than being able to sell it at a time later in the year when prices are higher and at a time to suit him. As a consequence, the absence of storage is limiting the farm's profitability.
- 2.4 As part of the proposal outlined in the Geraint John Planning (GJP) 'Planning Statement', the applicant proposes to return the unauthorised yard area associated with the building at Site 6 to the original limits of the permitted site area. The details are provided in the afore-mentioned Planning Statement and depicted in Fig.7 at the end of this Statement.
- 2.5 Planning permission was granted on the application site in July 2009 (Ref: 2007/01059) for two beef cattle buildings, a machinery store and a hay/straw storage building, but this permission has since lapsed.

- 2.6 All of the land is capable of growing high yields of cereal crops apart from 14ha of grassland cropped for three cuts per annum of silage which is wrapped and sold through the winter. The mainstay of the cropping is a rotation of winter wheat and winter barley with high yielding grass leys used as a break crop.
- 2.7 Approximately 500 tonnes of wheat and 400 tonnes of barley are harvested each year, with the straw baled into round bales and sold off the field. Since there are no storage and drying facilities on the farm, grains are difficult to dry and therefore the harvesting window is much narrower. Grain is far less saleable if the moisture content is even slightly too high as the potential for mould increases.
- 2.8 The farm machinery is stored remote from the site and so has to be ferried back and forth from the Llandow site. Given the size of the machinery, it would be much more efficient to store it at the site of use. The buildings at Site 6 are too small to accommodate all the machinery which needs undercover or secure storage.

3 Proposed Development

3.1 The applicant proposes to construct two steel portal framed buildings at Site 1 – one would be dedicated to grain storage and the other would be used for straw storage in a Dutch barn structure. This would include a fully enclosed extension which would be used to store farm machinery requiring secure or undercover storage. Such machines would include

- combine harvester and header;
- two tractors;
- loading shovel;
- grain drill and sprayer;
- fertiliser spreader;
- mobile grain drier;
- quad bike; and
- quad bike attachments.

Grain Store

3.2 The grain store would be 30.5m x 18.3m (558m²) and would be 7.3m to the eaves. It would have concrete panels to 4m in height with a central divider to ensure there is no mixture of grains

which would contaminate loads and so reduce payments. The building would be accessed by two roller shutter doors (Fig.1) and there would be a 12.2m roof extension to the front elevation. This extension would have no walls on three sides and will provide temporary storage for freshly harvested grain waiting to be dried within the main building, but prevents rainstorms wetting the fresh grain any further.



Figure 1. Grain store similar to that proposed

- 3.3 The open sided extension will also hold the mobile grain drier – the open sides will allow a breeze to pass through as the grain is being cleaned and dried in the machine. The breeze will not only assist in drying but will also blow away the chaff and dust as the grain passes through the drier.
- 3.4 Prior to the grain being stored and sold it must be dried. If the moisture content of the grain is too high (>15%), the quality will be adversely affected with an increased risk of mould and mycotoxin growth and insect/pest infestations, with the resulting rejection by the grain merchants.
- 3.5 Grain harvesting is a weather-reliant operation, which can be particularly fraught in the Welsh climate, so every opportunity needs to be taken to harvest the grain.
- 3.6 There is a total of 900 tonnes of grain requiring storage. This equates to 650m³ of wheat at 1.3m³/t and 560m³ of barley at 1.4m³/t – a total volume requirement of 1,210m³
- 3.7 If loaded to 3m high there is a theoretical floor space requirement for grain storage of 400m². An allowance of 10% should be made for slumping of the grain at an angle of 45⁰, resulting in a

theoretical floor area of 440m². However, the need to segregate the grains increases the space requirement.

- 3.8 The remaining 120m² of floor area would be required for manoeuvring tractors and grain trailers while tipping at harvest, manoeuvring the loading shovel for loading the grain lorry and space for the grain segregation.
- 3.9 Adequate height is required to tip a grain trailer at harvest within the building with adequate door height to prevent a lowering trailer colliding with the building (Fig. 2).



Figure 2. Grain trailers require considerable roof space for tipping.

- 3.10 The roller-shutter doors will be 8m in height and 6.1m wide and can be locked to prevent unauthorised access and would be compliant with Assured Combinable Crops Scheme (ACCS) standards, in the absence of which it is difficult to achieve good prices.
- 3.11 The proposed building would be similar in appearance other farm buildings throughout the area. It would be a steel portal-framed structure with slate blue plastisol-coated metal profile side sheets and a natural grey fibre cement roof with two translucent sheets per bay. The roller-shutter doors would be in the eastern elevation.

Straw and Machinery Store

- 3.12 The straw storage building would be a modern version of the traditional curved roof Dutch barns – essentially a roof supported by a series of metal stanchions (Fig.3). It would be 97.5m x 18.3m (1,784m²) and 5.0m to the eaves. The building would be easily accessible and used to store round bales of straw harvested from the arable land. This would enable the straw to be sold during the winter and spring period when prices can be double those achieved at harvest.



Figure 3. A straw storage building similar to the proposed

- 3.13 The 100ha of cereals would produce approximately 400 tonnes of straw, which would equate to 2,250-2,500 round bales of straw, requiring a storage area of some 7,500m³. If stacked up to 4m in height in the building this would require a floor area of 1,875m².
- 3.14 The machinery storage area would be an enclosed extension to the straw storage building and would measure 24.4m x 18.3m (446.5m²). This would provide secure and weatherproof storage for the machinery identified at paragraph 2.1. This machinery would cover a floor area of some 200m² if tightly parked together, but clearly there would be accessibility and manoeuvrability issues, particularly for the larger machines. Therefore, an allowance of 100% would be required on top of the tightly packed storage area, which would equate to 400m² in total.
- 3.15 Whilst some machinery can be stored outdoors, some machinery is vulnerable to damage by the attrition of wind and rain which will impair its long-term performance. Some of the larger combine harvesters are over £350,000, so such deterioration can have significant financial impacts.
- 3.16 Quad bikes are readily stolen and so secure storage is important as well as being stored out of sight.

- 3.17 The machinery needs to be repaired and serviced throughout the year to ensure it is ready for work in a timely manner and operating to full efficiency. This would be undertaken within the machinery storage area and so space will be required to enable items such as combine headers to be moved around whilst changing blades. This would equate to the remaining 50m² of space within the machinery building.
- 3.18 Accessibility to the various parts of the machinery store is essential otherwise many items of machinery would need to be removed in order to access just one item. Therefore, each bay would have a roller shutter door, with a wide roller shutter door (10m) at the end elevation to allow the combine to drive into the building without removing the header (Fig.4).



Figure 4. Modern farm machinery such as combines are large and expensive

Yard Layout

- 3.19 Site 1, the application site, comprises an excavated area of land with a hardstanding base. The area provides ample turning area and storage space for silage bales which do not require undercover storage. The site currently comprises various stockpiles of stone and surplus material from the excavation of the site.
- 3.20 Under the proposal the site will be reprofiled to provide an even and uniform hardstanding surface which is ideal for the storage of silage bales as there will be no soil contamination when ferrying bales during wet weather.
- 3.21 The remainder of the site will be restored to agricultural use. This is shown in Fig.6.

Silage Bales

- 3.22 Each year there will be approximately 30ha of grass, either as part of the arable rotation or land in grass which is unsuitable for arable production. This grass will be cut and baled for haylage or silage three times a year. These bales will be sold either to the equestrian market or to other farmers who may be short of fodder for their livestock.
- 3.23 These fields will produce some 1,800 wrapped bales per annum which will be stacked on the yard area (Fig.5).



Figure 5. Wrapped bales need a firm clean surface for storage

- 3.24 The stacking density will vary according to the moisture content of the bales – under ideal conditions when the grass can be harvested under dry conditions, the bales can be stacked three high, which would require a storage area of 1,800m².

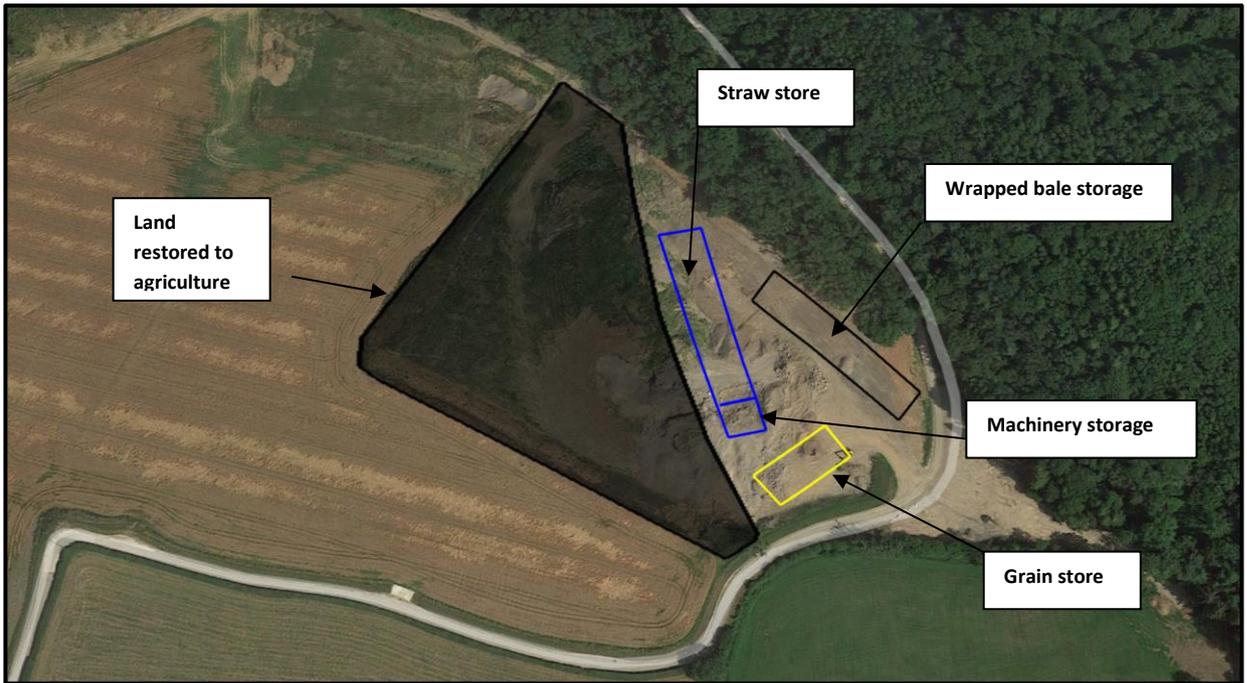


Figure 6. Storage of the various items on the application site – Site 1



Figure 7. The shaded area at Site 6 will be restored to agriculture

4 CONCLUSION

- 4.1 This planning application is for the erection of two agricultural buildings for grain, straw and machinery storage including a wet grain cover and a hardstanding yard which would be used to store wrapped silage bales. The provision of the buildings would enable the business of R & A England to remain competitive in a market place with increasing demands on provenance and high standards of production.
- 4.2 This statement demonstrates that the buildings are reasonably necessary for agriculture on the 123ha agricultural unit at Pwll y Darren Farm in the absence of adequate storage facilities necessary for a farm of this size.
- 4.3 The fact that the buildings and storage area are in a previously excavated part of the farm is highly beneficial as it assists visual mitigation of the new structures plus an open air storage area for round bales. Furthermore, whilst being secluded it is easily accessible for lorries and vehicles which may collect grain, straw and silage bales which the applicant sells off the farm at various stages through the year.