

# KENSWORTH QUARRY NEAR DUNSTABLE, BEDFORDSHIRE.

## 1 BACKGROUND INFORMATION

- 1.1 Quarry Manager: Mr Barton  
Tenant Farmer: Mr Simfield  
Consultants: Cobham Resource Consultants
- 1.2 Rugby Group PLC wish to deepen their chalk quarry at Kensworth, Bedfordshire with revised schemes of working, landscaping, restoration and aftercare. At present the quarry floor is restored to agricultural use.

### RESTORED AREA

- 1.3 The area already restored has been ripped and mole drained. There is a danger of nitrate leaching due to the close proximity to the aquifer in the new area. Land is below the original level and now nearer to the aquifer.
- 1.4 10 to 15 acres restored 10 to 15 years ago (circa 1975). The subsoil of the restored area contains large chalk stones and there is a problem with these being brought up into the topsoil each year with farm operations. Crops grown include barley and oats. No grass is grown due to the presence of flints in the topsoil; the major problem is the very large flints.
- 1.5 The quarry manager reported that there are funnels of gunky clay which have been returned to create subsoil. These have caused drainage difficulties which were not apparent prior to the land being worked. Yields are similar on restored and unworked land after a number of years. Costs incurred amount to more on the restored land because farm implements are often broken, however the rent for this land is lower.

### FIELD TO BE WORKED

- 1.6 60 acre field in the southeast corner of the site. Cobham Resource Consultants mapped this field as Batcombe Series - moderate to imperfect drainage. The field has no pipe drains but is mole drained. Cereals are grown with a yield of 3 tonnes / acre ( on all land ).

## 2 FIELD SURVEY - PIT OBSERVATIONS

### PIT 1 (Restored Land)

- 2.1 The land cover is cereals which are patchy in colour. There is the presence of perched water seeping in from approximately 10 to 15 cm depth. Below 40/50 cm chalky overburden material is encountered. The profile is slightly stony 0 to 10 cm and becomes moderately stony 10cm+. Topsoil is mainly clay with patches of red subsoil clay

which become more sporadic 40cm +. The whole topsoil is moist with water oozing at 10/15 cm depth.

**PIT 2 (Restored Land)**

- 2.2 The land cover is cereals, which look in a healthy state. This area was restored earlier than Pit 1. It has been mole drained and ripped and there is more depth of soil. The clay topsoil is 30 cm in depth, it is damp but there is no water on the ped faces as with Pit 1. The topsoil is lighter in colour in the top 10 cm. The subsoil is grey / orange in colour with chalk fragments and flints. Auguring is possible to 60 cm. Rooting is adequate with no obvious compaction in the plough layer or deeper. Some areas are moderately stony with over 15 % flints. ( the area has been flint picked).

**PIT 3 (Unworked Land)**

- 2.3 The land cover is stubble - no crop ( field has not been worked and is situated on a valley shoulder ). The topsoil is clay 0 to 30 cm with chalk and flints. Between 30 and 35 cm there is a thin layer of red clay and below this is a very chalky, white, moist clay loam. The chalky material is weathered and consequently rootable. Occasional rocks may hamper rooting but the medium probably remains rootable throughout. From 55 cm the profile is no longer augerable.

**PIT 4 (Unworked Land)**

- 2.4 The land cover is stubble and the pit is situated in a valley feature. The topsoil comprises clay (0 to 30 cm) with chalk and flints. Subsoil is red clay which is slightly calcareous but the calcareous nature varies. It is very calcareous where soil contains chalk fragments. No mottles were seen and less than 5 % chalk fragments and flints were observed. Possible WC I, Droughtiness grade ?, - roots were seen in the subsoil. Topsoil workability is likely to restrict the land to grade 2 or 3a, depending on the calcium carbonate content.

**ESCARPEMENT OF NON WORKED AREA**

- 2.5 This escarpment showed the presence of deep red clay funnels (70cms) in the calcareous rubble subsoils. It should be recommended that the topsoil ( 30 cm ) is removed separately. The upper subsoil stripped to 70cms depth should provide a structured soil to assist in a good standard of restoration. This should be better than the original practice of using a mix of subsoil overburden from depths extending to 3 or 4 metres.