STATEMENT OF PHYSICAL CHARACTERISTICS
Broomhill Farm, Bourton Heath

The site which covers about 43ha was surveyed by the Resource Planning Group in October and November 1990. It is situated about 7½ miles south east of Coventry and 4 miles south west of Rugby, close to the village of Bourton on Dunsmore. The site is bounded on all sides by agricultural land and the B4453, the Straight Mile, runs through the site. At the time of survey all the land was in agricultural use with winter cereals and permanent pasture grazed by sheep.

Climate. Average annual rainfall in the vicinity of the site is 711mm. The accumulated temperature above $0^{o}C$ for the period January to June is 1358 day^{o}C. There are no overall climatic limitations to the use of this land. The balance between summer rainfall and evapotranspiration gives moisture deficits of 96mm for winter wheat and 85mm for potatoes. The median duration of field capacity is 157 days. The growing season extends to about 240 days from end of March to late November and the mean date of the last frost is early May.

Site. The land is generally level and altitude varies little between 110m and 112m.

Geology. The area is underlain by Quaternary fluvioglacial drift deposits and at Broomhill Farm these comprise the Dunsmore Gravel. This is a clayey gravel containing mainly flint and quartzite pebbles. The soils derived from these parent materials are slightly stony sandy loams, often with fragments of iron-cemented sand and pebbles that once formed a continuous iron pan. At depth more clayey material may be incorporated within the profile.

Agricultural Land Classification

Grade 2. Land in this Grade is found mainly south of the Straight Mile and on the western edge of the site. Slight droughtiness is the main limiting factor due to lighter textures and stony layers within the profile. One or two profiles at the eastern end of the site are approaching, or of, Grade 1 quality but are too isolated to map separately.

Grade 3a. The remainder of the area has been mapped as Grade 3a. Drought risk and stone content are the main factors limiting the use of the land. Most of these profiles have lighter textured, very gravelly subsoils which restrict them to this Grade.

Area of land in each Grade

Grade	hectares	% of area
2	17.64	41
3a	24.99	59
TOTAL	42.63	100

Resource Planning Group
December 1990

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Soil Units

The site was surveyed by the Resource Planning Group in October and November 1990. Soils were examined using a Dutch auger to a depth of 1m unless prevented from doing so by stones or hard cemented layers. Pits were dug to obtain details such as soil structure and stone content and to describe representative soil profiles. To supplement the information gathered during this survey, use was made of the soils information obtained for the mineral company by Reading Agricultural Consultants in January and February 1990. Two main soil units have been identified on this site. Topsoils and upper subsoils over the whole site are similar and can be handled and stored as one unit. Where it is encountered the heavier lower subsoil of Unit II should be handled separately and not mixed with other layers.

Soil Unit I. This unit comprises the lighter textured soil profiles. Topsoils are very slightly, and occasionally slightly, stony sandy loams, over sandy loam and loamy sand, with sand at variable depths. The subsoils are slightly or moderately stony and often have a stony, iron cemented layer at about 45cm. Although difficult in places to auger and dig through, vertical root penetration through this layer to much greater depths was evident. Some profiles have lenses of clay within the sand at depths below 75cm, but over most of this unit heavier textures were not encountered. The following pit description from the eastern end of the site is typical of these light textured soils.

Pit 3 Winter Cereal. Level.

0-40cm 7.5YR3/2 medium sandy loam; moderately well developed fine granular structure; friable; 2% total stones mainly angular flint and rounded quartzite; few fine roots.

40-75cm 10YR6/6 light medium sandy loam; common ochreous mottles (5YR5/6); iron concretions; moderately well developed fine granular structure; very friable; iron pan 40-53cm with 14% total stones; total stones 25% mainly angular flint and rounded quartzite; few fine roots penetrating vertically through iron pan.

75-110cm 10YR6/6 medium sand; single grain; stoneless to very slightly stony; few fine roots; occasional clay lenses below 80cm.

AP wheat +35mm

Ap potatoes +41mm

Grade 1.

Soil Unit II. The soils in this unit differ from those in Unit I in having heavier lower subsoils, although the topsoil and upper subsoil are similar. These soils are found across most of the centre of the site, and typically have sandy loam topsoils over loamy sand, over clay with sand (sandy clay loam) at depths below about 60cm.

Pit 1 Ploughed.level

0-30cm 10YR4/3 medium sandy loam; well developed fine to medium granular structure; total stones 5-6° rounded quartzite and angular flint; 2% stones larger than 2cm; many fine and medium roots.

30-65cm10YR7/6 light loamy medium sand; few ochreous mottles and iron staining; moderately well developed fine to medium granular structure and single grain; very friable; total stones 40% flint and quartzite; 3% stones larger than 2cm; few fine roots; very variable horizon.

65-95cm 7.5YR5/8 clay with sand (PSD = sandy clay loam); common ochreous (7.5YR6/8) and grey (7.5YR7/0) mottles; poorly developed medium angular blocky structure; friable; porosity greater than 0.5%; gravel, 40% stones all 2mm to 2cm; no roots; very variable horizon.

95+ gravel, too stony to auger or dig.

Ap wheat -14mm

Ap potatoes -16mm

Grade 3a