

BEXHILL TO HASTINGS LINK ROAD

Soils and Agricultural Land Classification

by

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BEXHILL TO HASTINGS LINK ROAD – SOILS AND AGRICULTURAL LAND CLASSIFICATION

1. This report has been prepared by LANDLOOK on the instructions of EAST SUSSEX COUNTY COUNCIL. It sets out the findings of an agricultural land classification over two route options on a proposed road link between Bexhill and Hastings in East Sussex.
2. Two basic routes, including modifications, are being considered in the County Council plans (Figure 1) and samples have been taken at 100m intervals along each. The results are compared and the impact of land quality assessed for each of the options.
3. The land is undisturbed and in both grassland and arable use.
4. The land was surveyed in July 2004 and has been graded according to the current MAFF guidelines and criteria (MAFF 1988).

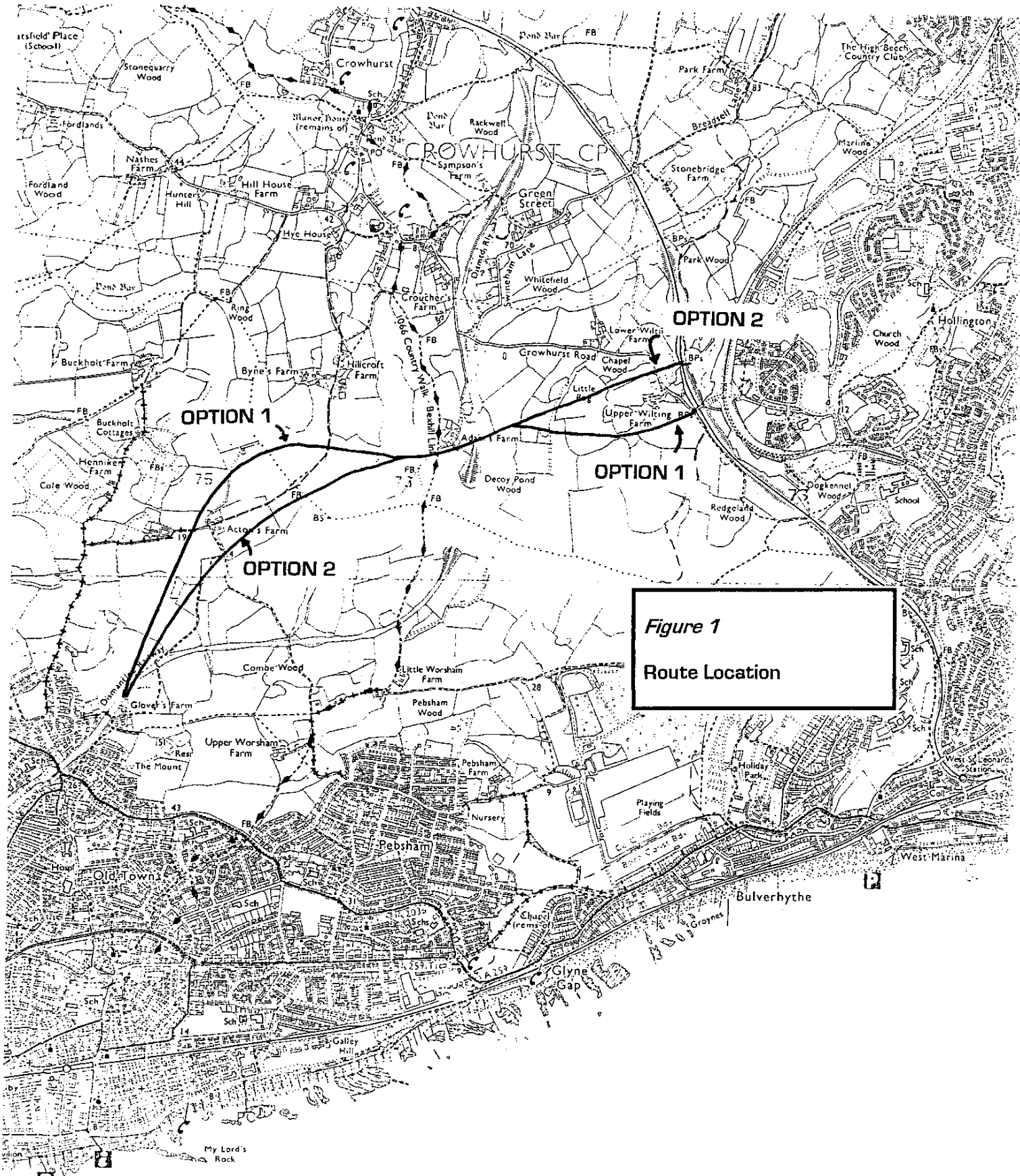
Factors affecting ALC grade between Bexhill and Hastings

5. **Climate** affects the grading of land through the assessment of an overall climatic limitation and also through the interaction with soils.
6. The Met Office (1989) provides the key climatic variables for this site. The figures are given in **Table 1** below:

Table 1: Climate and altitude data

Grid reference	TQ 7500 1000
Altitude	19m AOD
Average annual rainfall	780mm
Accumulated temperature >0°C (Jan-June)	1507degree days
Moisture deficit, wheat	122mm
Moisture deficit, potatoes	120mm
Field capacity period	163 days

7. The combination of rainfall and temperature at this site imposes no direct climatic limitation upon land quality over this.
8. **Soil wetness** is a major limitation to land quality over much of the ground with soils displaying evidence of seasonal wetness by way of greyish matrix colours and/or rusty mottles. In places mottling is not well expressed but the presence of a clearly distinguishable slowly permeable layer causes wetness in the upper horizons of some of the



- soils. In the floodplain a fluctuating groundwater table creates severely wet conditions in the soils.
9. There is a high plant-water demand in the district and many soils suffer from a lack of available water to fully sustain plant growth and **drought** is a further limiting factor over much of this land
 10. Low ground along the floodplain is at risk from **flooding**, although figures of the duration of inundation are not available for the site but will nevertheless be a factor in determining land quality over some of the land.
 11. Moderately steep slopes towards the eastern end of the route impose a direct **gradient limitation** on narrow strips of land to be crossed by the proposed construction.

Geology and soils

12. Published geological information is available on the 1:50,000-scale map of the Hasting District (BGS 1989) and shows Cretaceous rocks over the entire area of interest. These comprise three principal formations, namely the Ashurst Beds, the Wadhurst Clay and the Tunbridge Wells Sands, which give variable parent materials over the area.
13. The centre of the surveyed land is dominated by thick clayey alluvium derived from the local rocks.
14. The detailed soil survey clearly recognises mixed materials over the land conforming to the published information with sandstone and siltstone on some of the convex brows contrasting with the clayey materials on the upper and lower slopes.
15. Soil information is available on the small-scale National Soil Map, which shows three soil associations over the ground. These include the Curtisden Association of deep slightly wet loams and loamy over clayey soils; the Wickham 5 Association of seasonally wet loamy over clayey soils and the wet soils in the floodplain Coombe Haven of the Fladbury 3 Association.
16. The detailed soil survey, undertaken for this study, broadly reveals a pattern of loamy over clayey soils and deeper loamy and silty soils on the higher ground with slowly permeable substrates and slight or seasonal wetness (Wetness Class II or III). The alluvium has uniformly clayey soils, which are severely wet (Wetness Class IV).

AGRICULTURAL LAND CLASSIFICATION

17. Grade 2 and sub-Grades 3a and 3b land are represented on this site together with a small area of non-agricultural land. The proportional extent of each of the land grades is given in Table 2 below and their distribution is shown on the accompanying map.
18. **Grade 2 land** covers approximately one quarter of both options. Soils are either freely drained light loams over sandstone on convex slopes, over the higher parts of the area of interest. The soils generally hold moderately large amounts of water, but locally the presence of hard sandstone is sufficient to impose a slight drought limitation and crops will suffer slightly from a lack of water leading to a loss of yield in most years. Other soils in this category have light loamy over clayey profiles with slow permeability and slight seasonal wetness.
19. The bulk of the land above the floodplain has loamy or silty over clayey soils with slowly permeable heavy textured substrates within 58cm of the ground surface. Soils are seasonally wet (Wetness Class III) and are placed in **sub-Grade 3a**. The increased wetness imposes an access limitation and much of the ground will be intractable for long periods from late autumn until spring.
20. The clayey soils on the floodplain are very wet (Wetness Class IV). Drainage of the ground surface is aided by a system of channels taking excess water from the surface and thus allowing access to the ground in the summer months. This land is included in the **sub-Grade 3b** category. The small areas of moderately steep slopes (7° - 11°) at the eastern end of the routes are also included as land of moderate quality.
21. **Non-agricultural land** accounts for a small area over the routes and is mainly small patches of woodland which cover the steeper slopes and locally at the edges of the floodplain.

ROUTE COMPARISON

22. The two routes between Bexhill and Hastings are compared. They comprise a route from Glover's Farm, which swings north of Acton's Farm before turning east across the alluvium towards Adam's Farm. It then continues south of Upper Wilting Farm (Route option 1). The other route, from the same starting point goes south of Acton's Farm to join the other line across the alluvium and then takes a line north of Upper Wilting Farm (Option 2). The two routes are indicated on Figure 1.
23. The table below gives the proportionate extent of each of the land grades and sub-Grades along each route.

Table 2 – The extent of land grades

Land Grade	Option 1		Option 2	
	Metres	%	Metres	%
2	760	21	950	27
3a	1700	46	1300	37
3b	940	25	1050	30
Non-agricultural	310	9	200	6
Total	3710	100	3500	100

24. There is little difference between the two routes. Option 1 is slightly longer and includes a smaller length of Grade 2 land. It crosses about 100 metres more of moderate quality land which is mainly accounted for by the steep gradient on the eastern side of the area of interest. In Option 2 a small area of trees, which is classified as non-agricultural land, replaces the steep slopes in much the same area.
25. In the district much of the land away from the floodplains will be mainly covered with loamy over clayey soils with a wetness limitation and will fall principally into the 3a sub-grade. Small patches of freely drained ground associated with the sandstones within the formations will give very good quality land (Grade 2) locally on convex brows but these are generally not extensive enough to make up the soils over entire fields.

References

British Geological Survey (1980). 1:50,000 scale geology map. Sheets 320/321 – Hastings and Dungeness .

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MAFF (1984). Agricultural Land Classification of England and Wales.

Soil Survey of England and Wales (1983). National Soil Map – Sheet 3 – South East England.

METEOROLOGICAL OFFICE (1989). Climatological data for Agricultural Land Classification.

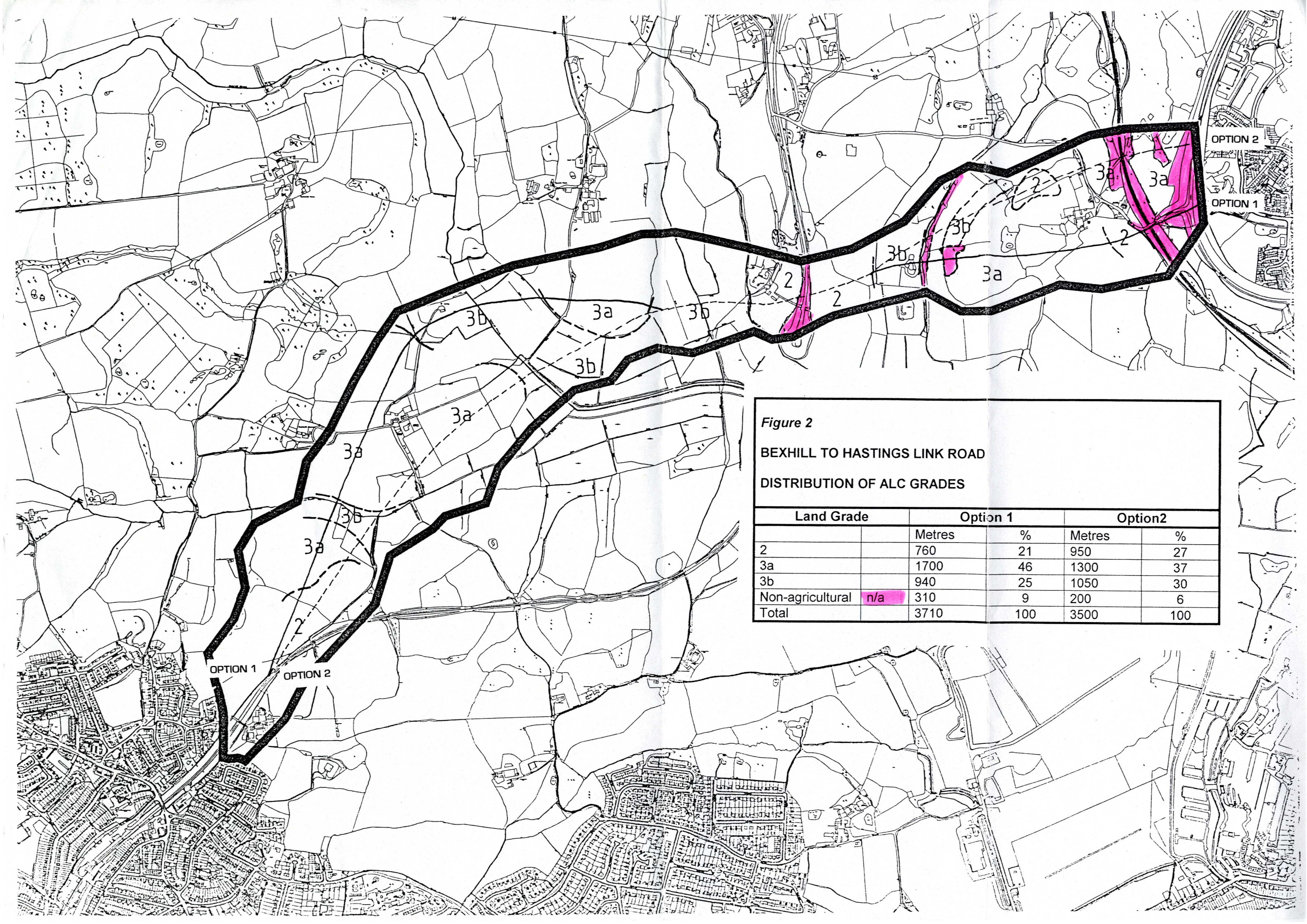


Figure 2
BEXHILL TO HASTINGS LINK ROAD
DISTRIBUTION OF ALC GRADES

Land Grade	Option 1		Option2	
	Metres	%	Metres	%
2	760	21	950	27
3a	1700	46	1300	37
3b	940	25	1050	30
Non-agricultural	n/a	9	200	6
Total	3710	100	3500	100