

APPENDIX 15.2 FURTHER DETAILS ON THE AGRICULTURAL SIGNIFICANCE ASSESSMENT CRITERIA**A15.2.1 INTRODUCTION**

This appendix is included to assist in the understanding of the agricultural assessment in Chapter 15 of the EIS.

A15.2.2 LAND TAKE**A15.2.2.1 General**

The most obvious impact of a road scheme on a farm is land take.

A15.2.2.2 Individual Fields

In general the larger the field size the more useful the field. This is particularly because of the ease of use of machinery in larger fields. Reduction in the field size results in increased costs.

A15.2.2.3 Land Holdings

The land take is one of the main impacts on a farm. The degree of the impact varies with the area of the land taken and the quality of the land taken. The impact of the loss of land on a particular farm is complex. A reduction in the farm area of 25% does not necessarily translate into a reduction in production of 25%. Increasing production levels elsewhere can compensate for the loss of land. Furthermore land can be purchased or rented to replace land lost. However this land may not be adjacent to existing land and increased costs can result.

The location of the land taken is also a factor. For example in the case of a dairy farmer taking land laid out as paddocks adjacent to a milking parlour would have a larger impact than taking land removed from farm buildings.

The size of the farm affected is also of interest. The reduction in the area of a farm may reduce that farm's viability. This would indicate that smaller farms being affected is worse than larger farms as their viability is more likely to be compromised. However the viability of smaller farms is likely to already be in jeopardy. Furthermore production levels per acre are likely to be higher on larger farms. Thus affecting larger farms is more likely to reduce overall agricultural production levels to a greater extent.

A15.2.3 Division or Split of an affected Land Holding by the Proposed Scheme**A15.2.3.1 General.**

The division or split of an affected land holding is the effect caused when a road divides a farm or a field. It is important because it affects the future usefulness of land, which is not taken for the road scheme. It extends the impact of the road scheme outside the foot print of the actual landtake and is a significant residual impact of a road scheme on Agriculture.

The term severance is used to describe this effect. However the term severance is sometimes also used to describe an impact where no split or division occurs. In the following when the term severance is used it is assumed that a division or split of lands has occurred.

A15.2.3.2 Severance of Individual Fields.

Severance of individual fields occurs when a road alignment splits a field into two or more pieces. It should be noted that a field which has land removed from it along one boundary is impacted on by suffering land take but is not severed.

Most forms of agriculture are more efficient when large fields are used. An important variable cost is the use of machinery, which is most efficient in larger fields. This is particularly the case with tillage. Severance is minimised when potential routes run along the boundary of a field. In this way the area remaining is left in the largest possible unit.

The following significance criteria are used to rank severance of individual fields.

Table A15.2.1: Individual Field Severance Significance Criteria.

None	The route while taking land does not split the field into two portions.
Minor	The route passes generally along a field boundary leaving the bulk of the land in one unit.
Moderate	The route passes not along a boundary but through the field. However one unit is left with more than two thirds of the available area.
Major	The route passes not along a boundary but through the field. The field is split into two pieces. However both pieces are regularly shaped and useful.
Severe	The route passes not along a boundary but through the middle of the field. The field is split into two pieces. In addition both pieces are irregularly shaped and much less useful.

A15.2.3.3 Severance of Land Holdings

In the same way that an individual field can be severed, a group of fields making up a land holding can be severed by a road alignment.

There are two factors to be considered:

- Severance of buildings.
- The amount of land left in the divided parcels

Where there are farm buildings located on the holding being severed the impact of severing these buildings must be considered. Land left isolated from the farm buildings is left without the facilities that the buildings provided. The amount of land left with the farm buildings is also important. The larger the amount of land that is left with the buildings the better. Of course constructing new farm buildings can mitigate this impact.

The impact of severance on farm buildings is particularly acute in the case of dairy farming, as twice-daily access is required to a milking parlour for dairy cows.

In many instances land holdings do not have any farm buildings located on them. This may occur when the land holding is part of a farm where there are farm buildings located on another land holding which is part of the farm. It could also occur where the type of agriculture does not require farm buildings, for example when land is rented for potato growing. Severing such holdings still increases the cost of their operation. Movement of stock and machinery is affected.

In order to prevent or mitigate the impact severance road schemes frequently include a number of different measures. A number of different general situations can be identified.

An over or under bridge to allow access from one side of the new road to the other is provided. The bridge provided is for the sole use of a particular farmer and is suitable for all types of agricultural traffic. In this situation it must be acknowledged that the severance has been prevented as the land parcels split by the road have been reconnected. In this case the land holding is still an integral undivided area of land even though a rectangular shape may have been converted to a H type shape of two portions connected by a narrow passageway.

An over or under bridge to allow access from one side of the new road to the other is provided. The bridge provided is for the sole use of a particular farmer but is not suitable for all types of agricultural traffic. In this situation it must be acknowledged that the severance has been mitigated but is not eliminated as certain farm activities will require the farmer to leave the land holding.

An over or under bridge to allow access from one side of the new road to the other is provided however the bridge provided is not for the sole use of a particular farmer. Such provision mitigates the impact of severance but does not prevent it as the land holding no longer consists of an integral undivided are of land.

Access is provided to an over or under bridge carrying a public road across the new road. This access may be directly to the public road or by means of an access road. This situation is similar to the above in that such provision mitigates the impact of severance but does not prevent it as the land holding no longer consists of an integral undivided are of land.

A15.2.4 Impact

A15.2.4.1 General

Impact is the overall effect of a road on a farm enterprise, land holding or a field. Severance and the area of land taken which are important components of impact have been discussed above. However there are other components including the effect on buildings, reduction in usefulness etc.

A15.2.4.2 Impact on Individual Fields

As mentioned above severance is a major component of the impact on an individual field. Other components include:

- Loss of land area.
- Loss of shelter. Strong hedges etc. provide shelter to crops and animals.
- The usability of the resulting parcels. Long narrow parcels or parcels which are triangular shapes or less easy for machinery.
- Loss of animal handling facilities.

A15.2.4.3 Impact on Land Holdings

As with an individual field severance is a major component of the impact on a Land Holding. Other components include the following.

- Reduction in the area of the Land Holding.
- Loss of shelter. Strong hedges etc. provide shelter to crops and animals.
- The usability of the resulting parcels. Long narrow parcels or parcels which are triangular shapes can make the use of machinery more difficult.
- Loss of animal handling facilities.
- Loss of crop handling facilities.
- Reduction in ease of access.
- Difficulties in the disposal of effluent.
- Interruption to farm management systems.
- Impact on drainage.
- Removal of farm buildings.

The removal of farm buildings seldom occurs but when it does occur it is normally a severe impact. Dairy farms equipped with milking parlours, silage pits, slatted animal housing and effluent collection facilities would be worst affected. It should be noted that this is an impact that is easily mitigated by the reconstruction of the buildings. Mitigation of severance on the other hand may not be possible.

A15.2.4.4 Impact on Farm Enterprise

Finally in the hierarchy of impact there is the impact on the farm enterprise. A particular farm may consist of a single land holding. Alternatively it may consist of two or more land holdings. The importance of the land holding to the overall enterprise must also be considered. Consider a dairy farm, which consists of two holdings. One holding has all the farm buildings including milking facilities and has paddocks laid out in easy reach of these facilities. The second is used solely for long-term grazing and fodder production. Clearly in this case the first land holding is the more important to the enterprise.