



Guide to Country Gates and Barriers

This guide forms part of our Country Paths series of guides and is provided to give land owners and managers guidance on Best Practice related to the more common 'Barriers' used in the countryside.

The 'access' issue has never been just about wheelchair access, the issue has always been to make the whole world accessible to the greatest number of people; where ever it can be done in a reasonable manner and at a reasonable cost. This means that some areas will always remain beyond the reach of some people. But where access can be improved land owners and managers should take the time and make appropriate efforts to make their property as universally accessible as is reasonable.

Modern battery powered wheelchairs, trikes and scooters can go much further and get to places that a few years ago were almost impossible to reach a few years ago. However, uneven paths, woodlands, river and lake sides didn't just exclude wheelchairs; young families with buggies and older people found it just as difficult to reach their favourite picnic spot and enjoy the local countryside. Today understanding and acceptance of the need to make the world more accessible is finally spreading to the rural landscape,

Note: many people with low hearing are affected a much as those with low vision by the lack of visual clues and tactile warnings or tripping hazards. A person with low hearing or deafness tends to look at their companions face when talking and relies on visual and tactile clues to give warning of hazards and for guidance. A companion may also tend to look at the other person rather than where they are going and again rely on visual and tactile clues for guidance.

DRC CoP Part 3 (2002) Example - [The design of a new visitors' centre in a Welsh country park adopts in full the guidance provided in the Approved Document M. Once the centre is open to the public the manager receives a number of complaints from people with mobility and visual impairments who find that stiles and gates along the centre's nature trail are extremely difficult to negotiate. There is no guidance on the design of these physical features in the Approved Document M. Consequently they would not be exempt from a possible requirement for alteration under Part III of the DDA.](#)

See Country Path Audit for further commentary on legal aspects.



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Country Gates & Barriers

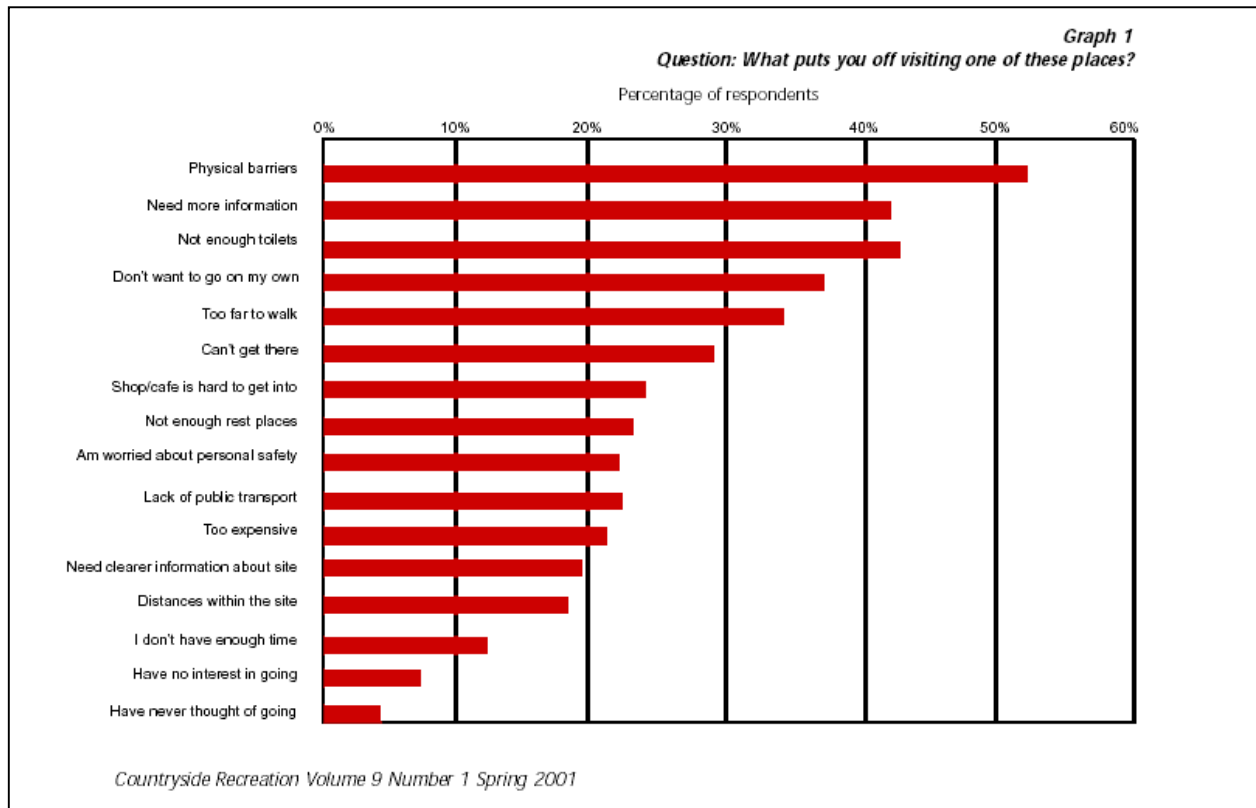
1 Introduction

It has become increasingly apparent that this physical provision alone does not always lead to significantly higher levels of use by disabled people. It is not unusual to find examples where physical access improvements have been made but sites still remain relatively under-used by disabled and older people. This pattern of under-use had been expressed to us informally over many years by a wide range of site practitioners. It was also highlighted by a Countryside Agency survey (Chesters, 1997) that reported that the missing visitors to the countryside represent 40% of the population and are mainly people on low income or state benefit, reliant on public transport and including ethnic communities, elderly people and people with disabilities.

The suggestion that these visitors are missing because they have no enthusiasm for using the outdoors is sometimes made by those looking to justify lack of change or action. In common with a wealth of anecdotal reports, the Making Connections survey showed that people expressed a strong desire to visit public green space (81% said they were interested in visiting the countryside; 78% in outings or sightseeing). Respondents' most commonly held perceptions of these places were as settings for experiencing relaxation, beauty and wildlife. A significant number of people said they would like the chance to visit green space more than they do at the moment.

Accessibility is a complex issue and relies on both physical factors (such as distance from home,) travel facilities and socio-cultural factors (such as people wanting to go somewhere and feeling comfortable there). These social factors are generally less obvious but often very significant in determining the quality of visitor experience.

Barriers preventing or dissuading use are diverse and interrelated. Physical barriers are interwoven with social and economic issues such as appropriate information, transport, wealth/poverty, social isolation, accompaniment, personal security, low expectations, management/staff attitude and outright discrimination. Barriers can prevent access but often they simply put people off bothering to make a visit, particularly for people who have to make more effort to go out.



This guide deals with the obvious physical barriers and alternatives.

2 Gates & Stiles

Most people see stiles as an invitation to walk, a confirmation that it is a public path. Conversely an ordinary gate is seen as an indication that the way is not public, unless the clearest sign on it says so. This misunderstanding is common; the reason for the very existence of this 'path furniture' is little understood by the public and the mechanism for adding gates and stiles (or removing them) is even less understood. It is not just the general public that is unclear, landholders, active walkers and some rights of way officers are just as unclear. Most routes contain gates installed to help stock control, these have been placed with the permission of the public, however, especially since the Countryside Act and the latest 'foot and mouth' outbreak many additional gates have been installed without permission. Their placing is questionable in legal terms. Check with the local authority rights of way department(s) if you believe a gate or stile is installed illegally.

BS5709:2001, Gaps, Gates & Stiles, states that - stiles should not be used for new structures except in exceptional circumstances and that where a structure is needed on a path a Gap should be the first choice, a Gate the second choice and a Kissing Gate a third choice.

The aim of the standard is to allow diversity of design so it is couched in functional terms e.g. the height of steps and crossbar, the verticalness of posts, the strength of steps, and the size of object



that must be able to pass through a kissing gate. A one metre diameter cylinder stood on end is the specified control dimension, this does not take into account the space needed for mobility vehicles and aids, pushchairs, etc.

The gate opening mechanism should be easy to identify and operate from both sides of the gate, and situated at 750 – 1100 mm above the surface level.

Pedestrian gates should be fitted with a latch that is safe and simple to use, such as a standard 'auto-latch' or spring catch (available from most agricultural suppliers and fencing contractors). If the gate is likely to be used by people in wheelchairs, this should be replaced by a latch that is easy to manipulate and can be reached from a wheelchair or mobility vehicle.

If at any time the structure fails to meet all the rules it is no longer to the standard. For those of you familiar with Highways Act 1980 Section 147, this would render any properly worded permission void with great benefit for enforcement of good repair.

A good quality gate, well marked to show that it is a Public Path (remember the perceptions at the start of this piece) might sometimes meet the undue inconvenience rule. Where permission for gate or stile is in fact granted, then the requirement to maintain it is part of any permission. The use of misleading signs, i.e. implying that access is restricted in some way, is illegal on footpaths with right of way.

It is a fairly complicated matter, for instance landholder maintenance should normally be made a condition; the landholder then becomes responsible for 100% of the cost, not the normal 75%. The conditions can include the obligation to keep some fencing stock-proof, to 'harden' the surface near the gate or stile, or anything else to prevent undue inconvenience. The sanction if not done is that the gate or stile becomes an illegal obstruction and can, indeed should, then be removed.

While motor cars and vans can be excluded fairly easily any gate arrangement which is passable by wheelchairs and other mobility vehicles can be used by cyclists, motor cyclists, ATVs, and often horses with minor inconvenience. The best that can be obtained outside of manned gates is traffic calming and speed reduction. Land Managers need to place suitable signs specifically excluding these vehicles, and then with local authority and police backing enforce strict fine regimes.

2.1.1 Locking & Chains

Padlocks and chains can be difficult for mobility vehicle riders and those with mobility, manipulative and visual impairments. An alternative suggested using RADAR keys can be applicable in some



places but the cost of the mechanism and its maintenance requirements may make extensive use prohibitively expensive.

Locking gates with RADAR keys also means that the route no longer caters for people without disabilities as they are unlikely to have access to a RADAR key. The use of private locks or keys issued on application to certain groups obstructs the free movement of the general public. Either way this makes for a privileged group while excluding most others this is likely to be judged an inappropriate and unreasonable solution.

Locks of all kinds are vulnerable to vandalism in the form of mud and glue packing of the mechanism, others besides vandals may employ these methods to close routes for their own purposes.

2.1.2 Lighting

Where ever possible gates and barriers should be provided with lighting for low light and night time use. A light level of about 50-100 Lux should be suitable for most people.

At road and rail crossings providing light should be seriously considered.

Consideration to using solar powered light should be given where there is no mains power along a busy or hazardous route.

In areas susceptible to mist, fog or low cloud, consider marking street seating and other obstructions with fluorescent markings to aid recognition.

See 'Lighting in the Countryside: Towards Good Practice' for detailed design and implementation guidance. (Available from Countryside Commission and the Department of the Environment a downloadable version can be found on the Communities and Local Government website (<http://www.communities.gov.uk/publications/>).

2.1.3 Trees & Hedgerows

Where trees overhang a footway it is advisable to cut them back to at least 2500 mm (to allow for snow build up) and preferably 3000 mm clear height to allow room for cyclists and regrowth. On bridleways this clearance height should be increased to 3500 mm.

Fallen leaves should be cleared regularly where they may cause a slipping hazard, i.e. on steps and ramps, but should remain in hedgerows and wooded areas off paths to preserve wildlife and soil quality.

Path managers should check regularly and after storms for fallen branches and trees which obstruct the path.

2.1.4 Kissing Gate

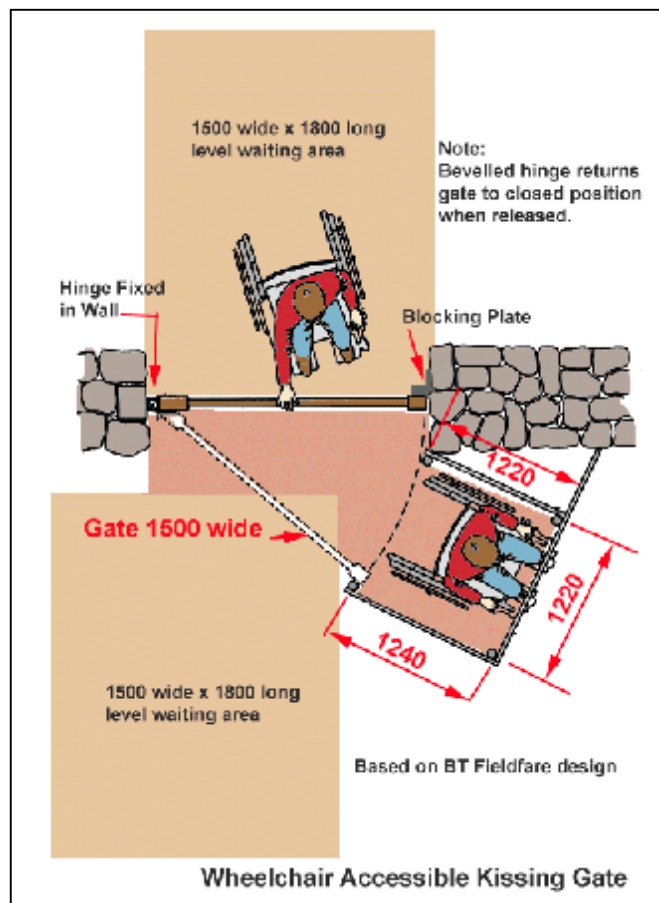
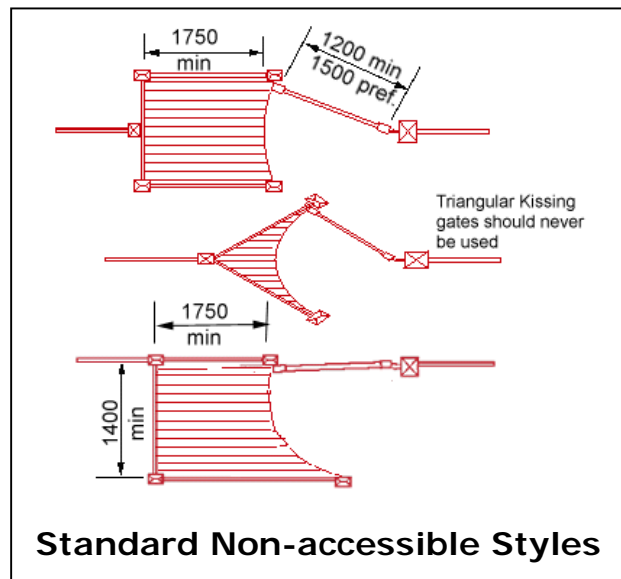
With a three foot gate (900mm), a not an uncommon design (but are the most controversial), people on their own have difficulty even if of average weight and girth, let alone people with wheelchairs or baby buggies. If used the minimum gate panel opening width should be 1200 and where possible a 1500 mm gate used.

The 1750 x 1400 mm clear space in the gate box is the minimum space provision for a manual wheelchair with companion. Larger wheelchairs and outdoor mobility vehicles may require a larger box to permit turning, i.e. 2200 x 2500 mm.

Some tricycles and other cycles designed for use by people with disabilities will not be able to make use of these gates due to the small space and restricted turning allowance.

The box and the approach areas should have level and smooth surfaces. The approach on each side should have at least a 3000 mm square level waiting/passing area. Yellow and black diagonal bands painted on the front edge of the gate help to make it easy to see. Using photo-luminescent paint helps in low light and night times.

Triangular and semicircular style kissing gates are generally impassable to buggies, pushchairs or wheelchairs; some can't even take larger people, yet well meaning people continue to put them up. These gates should be phased out and replaced during the next maintenance cycle.



Kissing gates provide limited stock control as animals such as dogs, sheep and pigs can easily negotiate these gates; either opening the gate themselves or by passing through a partly open gate. Poorly maintained kissing gates are often found jammed in a halfway stage so that people can pass.

The drawing shows a modified version of the BT Fieldfare wheelchair accessible Kissing Gate. A level drained area is essential including waiting areas on either side of the gate. This is not suitable for mobility scooters, powered wheelchairs and can be a

problem for double baby buggies. It requires two people for operation as few wheelchair riders will be able to reach the gate when closed.

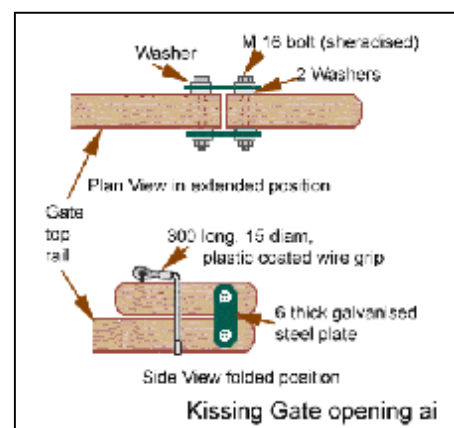
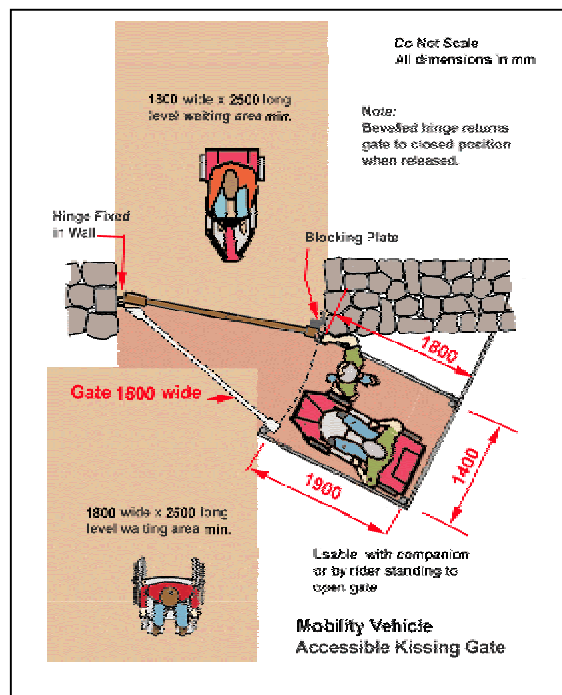
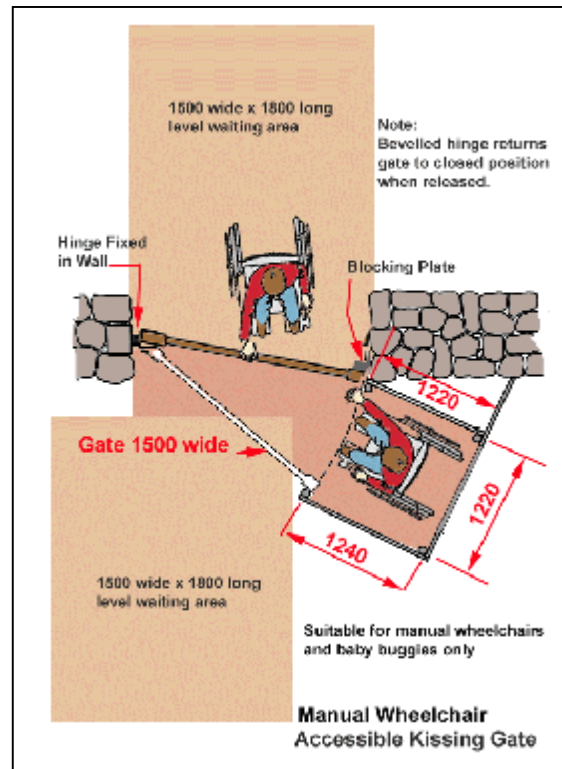
A similar arrangement with dimensions increased can be used for mobility scooters, powered wheelchairs and tricycles. Gate width 1800 mm, box width 1400 mm, box depth 1800 mm. The level waiting area should be increased to 1800 x 2500 mm min.

The two drawings illustrate how the BT design can be made usable by manual wheelchair riders, and

the second how they can be made suitable for most mobility vehicles.

Note: Unless these gates have positive latches to keep them closed many animals will be able to learn how to use them unattended.

To aid people riding wheelchairs and mobility vehicles to operate a kissing

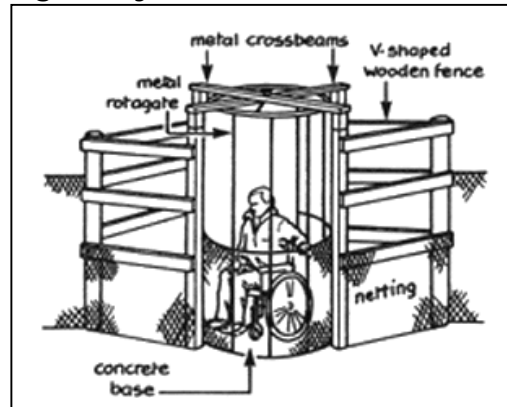


gate it is suggested that a 300 mm long folding section be added to the top end of the gate. By adding a plastic coated steel wire stapled to the folding section this can be extended so that the gate can be swung from a seated position.

2.1.5 Rota gate

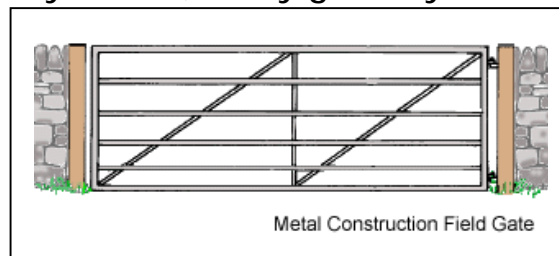
The Tillhill Forestry Estates Rota gate design may be suitable for some manual wheelchair and mobility aid users. It is unlikely to be successful for larger mobility scooters, people with low strength or assistance dogs.

It is awkward to use, heavy and maintenance intensive. It could be useful at entrances to parks and estates where there is an attendant present during all opening hours.



2.1.6 Field Gates

Traditional gates were usually made of timber, hung from gate posts of stone or timber. The traditional size of the gate related to the dimensions of the hay-wagon pulled by horses; today gateways often need to be substantially wider to allow for modern machinery such as combine harvesters. These wider openings are best served by a pair of gates which may include a central dropper/bolt into the ground to help keep it closed.



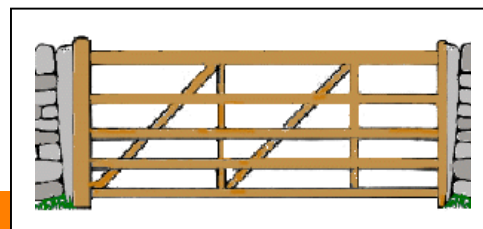
Timber field gates are still produced but many farmers prefer gates of cylindrical or angle iron metal which are perceived to require less maintenance and are generally lighter. Timber gates may be too heavy for some people to open unaided and may not be usable for this reason by wheelchair riders and people with low strength or mobility.

These gates need opening latch levers/bolts set no higher than 1100 mm on both sides, above a smooth, level, drained area which is clear of the gate swing.

Padlocks and chains must not be fitted to gates on routes which are open to the public.

2.1.6.1 Harewood gate

The Harewood estate joinery workshop originally designed particular style of gate this and its use has spread too many parts of

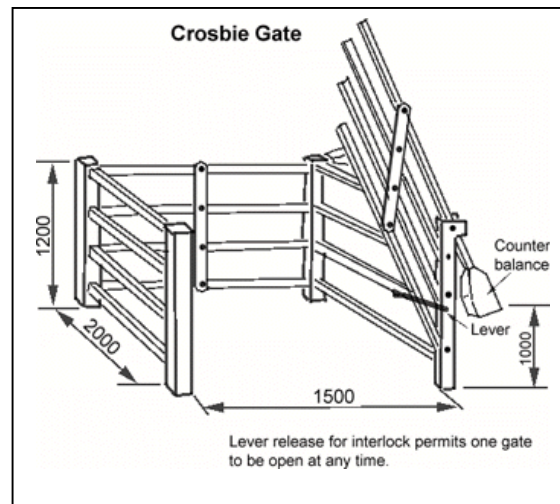


the UK where it can be found on farmland and estates.

This is a very standard type gate which is used for stock control. Where latches and chains are conveniently placed it is usable by most people, a chain or latch which folds over an upright on the end of the gate is not usable by smaller people or those riding mobility vehicles. The major problem comes from the lack of firm ground and rutting at the opening together with the weight and lack of maintenance of many timber framed gates.

2.1.7 Crosbie Gate

This gate style is probably the most all round useful gate for people with disabilities. The counter weight balances the weight of the gate making opening light and simple. Latches engage to hold the gate open while the users pass through. An interlocking bar prevents both gates being open at the same time.



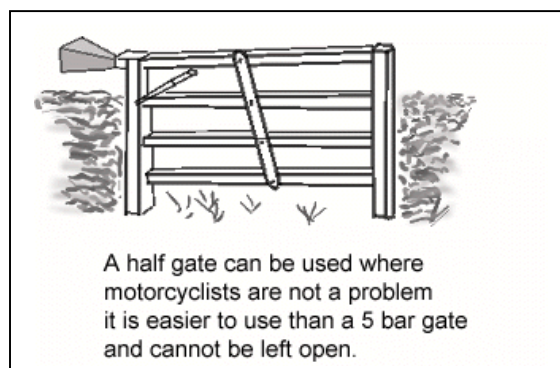
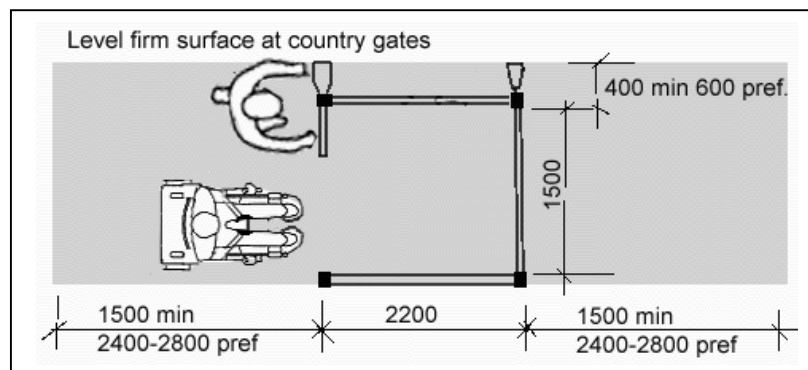
The dimensions shown for the gate box are the minimum that will permit use by most mobility vehicles and cycles. Some motor cycles may also be able to fit through this gate.

Its main fault is that it can be maintenance intensive due to the large number of moving parts.

This gate can be used by most riders without a companion.

Larger scooters may need the rider to dismount to open the gate.

Typical clearances and level ground requirements for a Crosbie gate are illustrated in this sketch. The 2200 mm depth of the box can be increased to accommodate larger mobility vehicles reclining and hand peddled cycles.



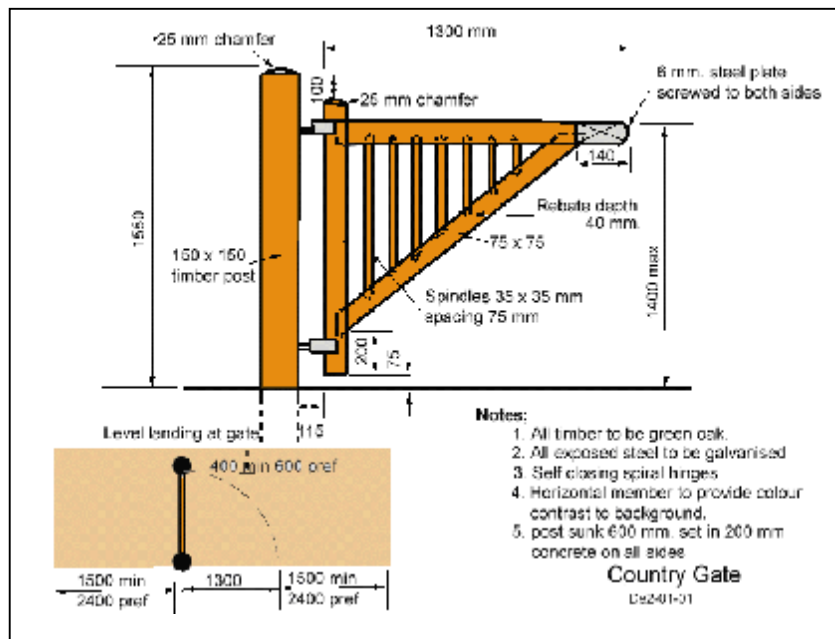
The half gate can be used if there are two people so that one holds the gate open while the other passes. The gate drops back into position on release ensuring stock control.

The surface should be level and well drained. Waiting areas should be available on both sides of the gate. The level approach should extend at least 500 mm wider than the gate on the operating side to permit mobility vehicles access to the mechanism. These gates have a low maintenance requirement an annual application of grease to the slides and bolts is all that is necessary.

Copyright Crosby Gates.

2.1.8 Pembroke Country Swing Gates

The sketch shows a square or rectangular type Country Swing Gate which has been modified by cutting the body of the gate away at an angle to improve utility by wheelchair/mobility vehicle riders. The angle enables them to duck under the body of the gate on a narrow pathway.

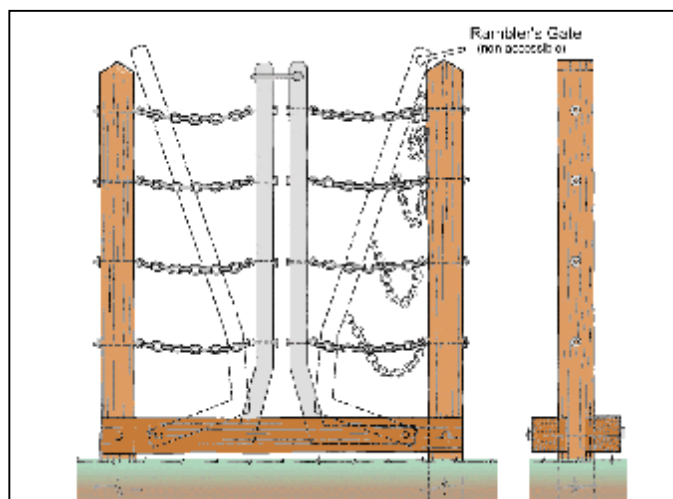


A level, smooth drained area as wide as the gate and at least 1370 mm long 1500-2200 pref. on either side of the gate is necessary.

The gate should be well maintained and the spiral hinges kept well greased. Care should be taken that the gate does not slam shut when released.

2.1.9 Rambler's Gate

These gates are popular in some parts of the UK. They can be expensive to buy and have high maintenance





requirements. These gates are not accessible for disabled and older people or for people with baby buggies etc. They are also a problem for younger children with out adult company.

These gates exclude horses, motor cycles and cars along with any mobility vehicle or mobility aid users.

2.1.10 Stiles

Many people think that stiles are for the convenience of the public to help people cross otherwise impassable or difficult fences or hedges. In most cases that view is quite the reverse of the true position but unfortunately it is a view shared by many, public and landholder alike. In fact the gate or stile is usually a concession by the public, to help the farmer stop his animals straying. A right of way, like a lane between fields or a main road, has normally to be kept clear at all times and a gate or stile is in reality a restriction of that right.

The specified 300 mm high step height and the need to swing legs over the fence/wall mean that many people cannot negotiate these stiles. A step height of 180 mm is preferred. Grab-rails which extend at least 1500 mm above the stile height should be provided to assist the balance of users.

BS5709 -The specifications for stiles in particular only apply to existing lawful stiles and for purposes of repair or rebuild. Only quite exceptionally may new stiles ever be used. For stiles the BS specifies step heights of 300mm maximum, this is too high for many people 180 mm is preferred but 250 mm could be considered.

For full inclusiveness these should be phased out during 2004/2005.

Stiles can be used to inform people that the way ahead is unsuitable for wheelchairs, mobility vehicles and baby buggies.

2.1.10.1 Construction and Maintenance Summary

If you must install a stile the following tips are general guidance on best practice so that stiles are safe and convenient for the public to use.

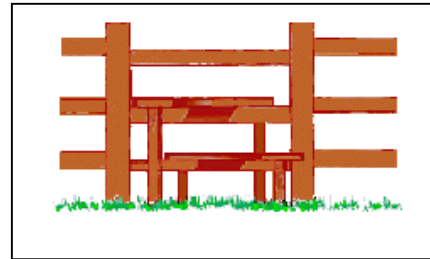
- If it is necessary to run barbed wire across a stile it must be covered with rails, plastic pipe etc or have the barbs removed.
- Leave one post longer than the other to act as a hand post. The public will find it easier to use the stile if the lower post is cut flush with the fence line.
- As a minimum any stile should have at least one step for convenience.
- If you need to use two steps they should be arranged in a cross rather than side by side.
- The height for any step should be no more than 180 mm from the ground or between steps.



- The top rail should ideally be no more than 950 mm high. If a higher fence is essential consider fitting a handrail at 950 mm.
- A vertical pole on one side of the step provides a steadying handhold for people with mobility difficulties and low vision.
- Be aware of changes in ground level either side of a fence, this may require additional steps on the lower side to make it suitable.
- On popular paths for dog walkers it may be helpful to build a dog hatch beside the stile. This will prevent possible damage to adjacent fences.
- It is always preferable to use new materials which are as durable as possible. Note: the County Council will normally reserve the right to withdraw help with labour to carry out repairs if substandard materials are provided.
- Remember to round any sharp edges on the stile, such as the edges of the top rail.
- Steps should not be nailed to rails. This does not make them more stable.
- Electric fences must be insulated. The wire can be placed inside a plastic pipe or be put underground to avoid crossing the footpath. You must attach warning signs either side of the stile.
- Steps should be level, constructed from rough sawn rather than planed timber, and be large enough for people to use safely. 175 mm x 38 mm x 900 mm is a good standard.
- Stiles in fences or hedges running down a slope should have steps placed nearer to the lower post and a level waiting area.
- Once a stile has been built it may need to be way-marked.
- Many stile designs can be purchased in kit form, but as noted above stiles are barriers and should be phased out where ever possible.
- Use of grooved boards for the step.
- Battens can be made from thin board to provide extra purchase on the step.
- The step can be covered with non-slip paint. (Protect surrounding soil and vegetation by covering in plastic sheeting during application).
- Use of hobnails or galvanised and welded wire mesh, not chicken wire (25x25 mm mesh is recommended.)
- The ground for 1500 mm on either side of the stile should be level and well drained. Picking up mud on feet cause people to slip when climbing the stile.

2.1.10.2 Crossover Stile

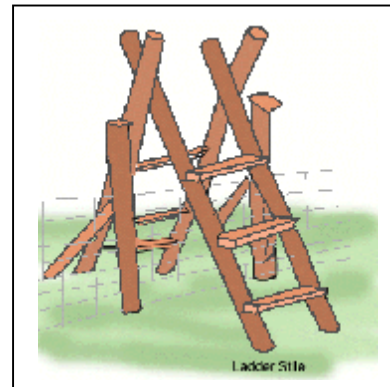
Timber cross-over stiles are very popular and can be constructed on site using treated softwood timber, or are widely available from fencing manufacturers. A tall upright pole or post as a hand-hold next to the timber stile provides extra reassurance for people with uncertain balance.



These are impassable for most older people and people with disabilities, an alternative gate should be provided.

2.1.10.3 Ladder Stile

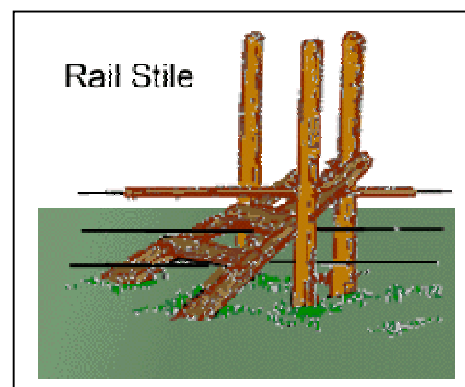
These are usually constructed of timber and are useful for crossing tall walls. They are impassable for most older people and people with mobility, sight or balance impairments. They cannot be passed by mobility vehicles or push chairs/baby buggies.



Providing a solid full width platform on the top step can help make these stiles more accessible. In general these stiles should not be used unless there is an alternative gate or gap which is accessible to all.

2.1.10.4 Rail Stile

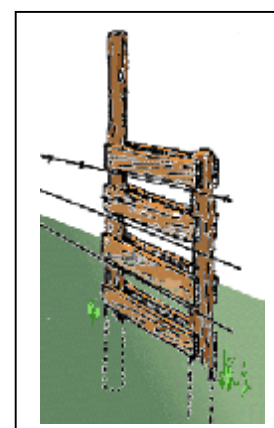
A variation on the ladder stile these can be more difficult for people to use safely due to the angle of the timbers.



2.1.10.5 Light Ladder Stile

This type of stile can be difficult for many people to use and should not be used on paths open to the public.

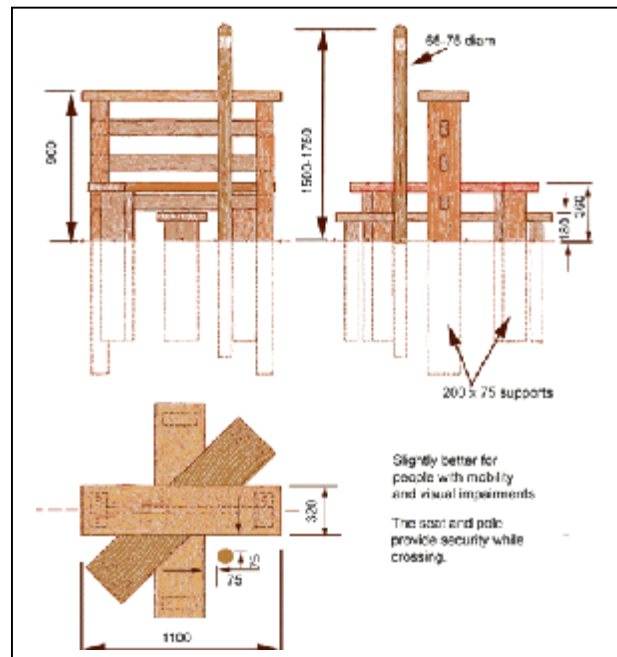
If used they should have 60 mm between the facing timbers of the steps to prevent finger trapping. Barbed wire should not pass near gripping places.



2.1.10.6 Seat Stile

The wide seat top enables users to sit, whilst swinging their legs over the stile. It is slightly easier to use for people with mobility and visual impairments. Care should be taken to regularly apply a suitable timber preservative to the step and seat tops because, if it becomes covered in algae growth, it will become slippery and may soil peoples' clothes.

The 900 top height of the stile means that it will not be stock proof, especially against sheep and lambs.



2.1.10.7 Timber Squeeze Stile

The timber built Y type or yolk squeeze stile is unsuitable for most people with disabilities unaided.

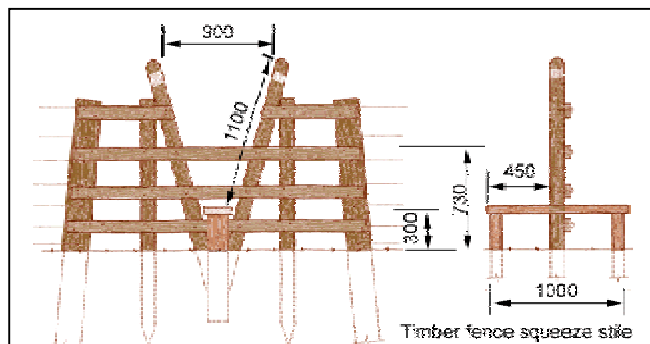
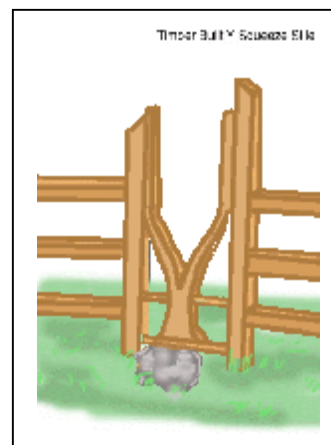
If used they should have a good levelled, smooth and drained 1000-1500 mm landing surface on each side. This should be large enough for two people to stand, one to aid the other.

Steps if added each side of the stile improve utility for some people.

These are not fully inclusive designs.

This narrow design of stile shaped like an inverted 'A', uses only one step. It allows users step through the stile, rather than swinging each leg over in turn: this may cause problems for people with mobility impairments. Providing white bands near the top of the grab post aids people with visual impairment to identify the post.

Provided the top rail is kept at an adequate height, it should be reasonably stock proof against cattle.



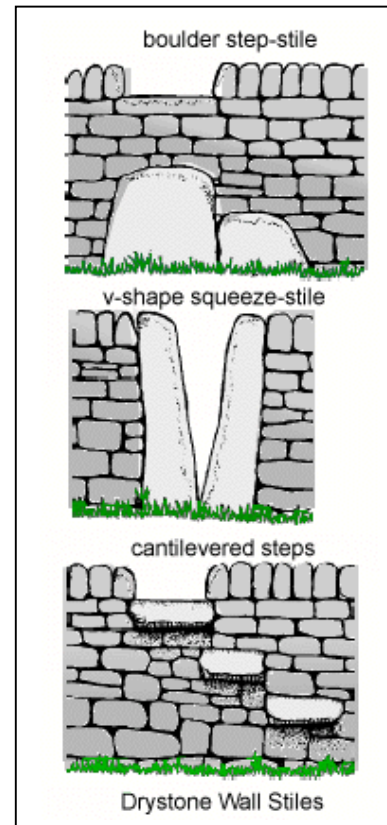
2.1.10.8 Dry-stone wall stile

There are several different traditional stiles for dry-stone walls. Good-sized stones jutting out from the wall provide cantilevered steps (see sketch bottom); a narrow v-shaped gap within the wall provides a squeeze-stile (middle); whilst occasionally large squarish boulders are placed to create a stairway either side of the wall (top).

Each design has its own hazard for people's use and an alternative level access route must be provided on a public right of way. On routes which are provided at landowner's discretion an alternative gate or route should be provided.

Where they are provided a smooth, level, drained landing area must be provided on each side. This level landing should be large enough for two people, the person crossing and a person providing assistance.

A drained level area at least 1500 x 1500 should be available on either side of the stile.

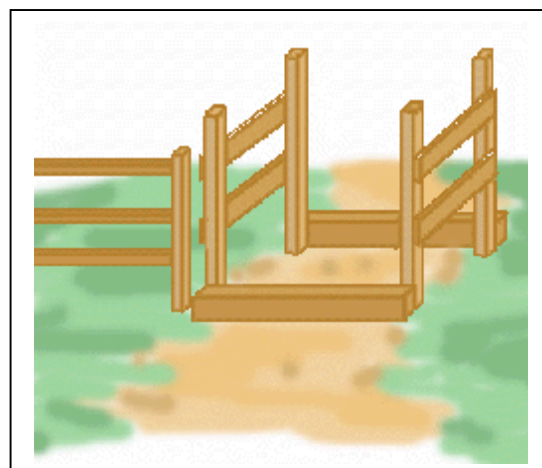


2.1.11 Horse Stile (or motorcycle trap)

A horse stile should only be installed where there is a proven and demonstrable need to deter access by motorcyclists along a path used by horse riders.

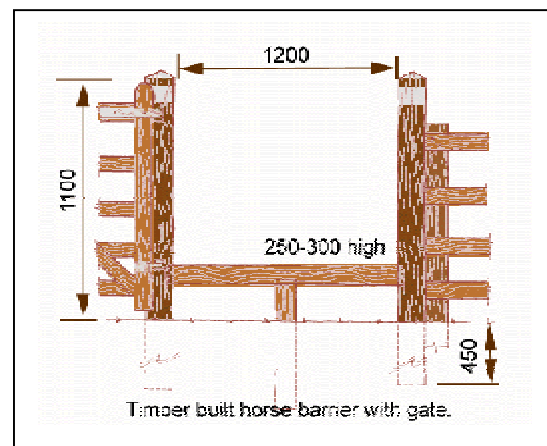
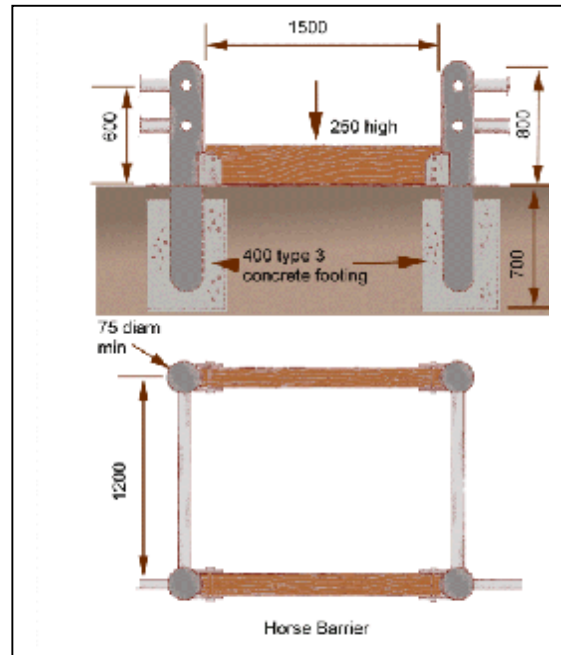
Pedal cyclists can also pass through this type of stile but need to lift their bikes over the railway sleeper beams.

- The height of top of the bars above ground should be 150-250mm. The taller height is preferred to help deter motorcycles and all terrain vehicles. It is not always successful in this as some look at it as a challenge.



- There should be no gap between the ground and the bar.

- The thickness of bars along the path should be between 80mm and 160mm.
- The minimum width of bar across the path should be 1500 mm. 1820 pref.
- The distance between centre lines of bars should be 1100-1300mm.
- There should be a clear manoeuvring space 4000mm wide and 3000mm long and at least 2000mm wide both sides of the horse stile and contiguous with it.
- Posts should be a minimum of 800 mm high (1000+ pref.) and at least 75 mm diameter.
- If the fence is in line with a footway a tapping rail should be fitted between 75 and 150 mm height.
- The space between the bars and at the approach should be free draining sub-base material, sand, gravel or similar.
- Access for other users, is made by providing a gate to the side of the horse stile.
- The horse should be able to walk straight through the structure. Space should be provided to allow that and no gates should require to be opened.
- The material of the ground bars should be such that striking them with horse's hooves should not make a sudden ring or noise likely to startle a horse.
- If the barrier has a combined gate the gate should be operable without dismounting from the horse.
- Constructing the barrier from concrete and galvanised steel make the construction more robust and vandal proof.



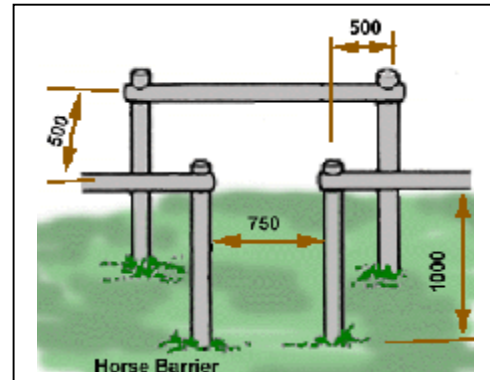
2.1.12 Horse Barriers

Simple barrier used to exclude horses from footpaths. This is not accessible by wheelchairs, mobility vehicles or people with baby

buggies. Alterations to make this accessible would make it usable by motor cycles and horses.

Other barriers and dividers used tend to have low (600 mm height or less) poles and rails.

These form tripping hazards for people with low vision and guide dogs can pass under the bar leading their companion to trip.



2.1.13 Hunting or Wicket Gate

These gates are normally wide enough to allow one horse through at a time, and are normally timber (although metal gates are sometimes found).

These gates are useful on bridleways for horses and also provide a convenient pedestrian gate. For equestrian use, it is important that the design allows the rider to open and close the gate while

remaining mounted, especially in the case of riders with disabilities who may be unable to dismount without aid. The upright on the opening side of the gate panel could be extended to a height of 2000 mm with a secondary upper opening lever.



The design and placing of latches often makes these gate unusable by smaller people and those with mobility impairments or riders of mobility vehicles. An operating lever should be placed no higher than 1100 mm above the surface and be operable from either side of the gate.

A level smooth area clear of the gate swing of at least 1750 mm long by 600 wider (on the latch side) than the gate should be provided on each side of the gate.

2.1.14 Kent Carriage Gap

The Kent Carriage Gap consists of one pair of smooth concrete bollards, 330 to 380 mm high, 1520 mm apart, with a clear space of at least 600 mm wide outside one or both of the bollards. This pair may be backed up with two further pairs if forced access by large vehicles is likely. Any remaining space outboard of the bollards, up to banks or fences, can be restricted with taller bollards. The bollards must be very solidly planted, and the surface hard and level right up to and through the pattern.

In use, any horse-drawn carriage less than 1500 mm wide can pass between the pairs of bollards. Larger carriages can pass with one wheel between the pairs of bollards, the other outside

Taller side bollards or poles should have colour contrast bands 100 mm high at 1000 and 1400 mm above surface level.

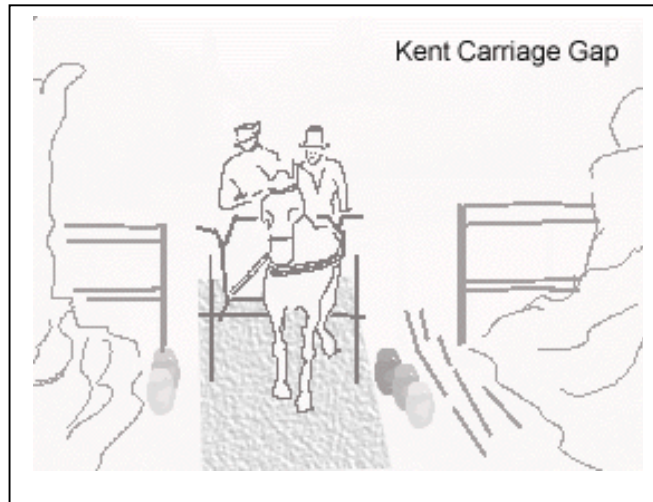
The 1500 mm wide gap should be paved or compacted surface (see Routes) the side gap may be unpaved.

These gaps pose no obstruction for people with disabilities except that the low bollards form a tripping hazard and should be colour contrasted to the

background and provided with hazard warning pavers before and along the length of the row of bollards.

They will obstruct low ground clearance motor vehicles, but some vans and 4X4s have sufficient clearance to negotiate the bollards. They are not an obstruction to motor cyclists.

This was developed by Kent County Council on 1995.

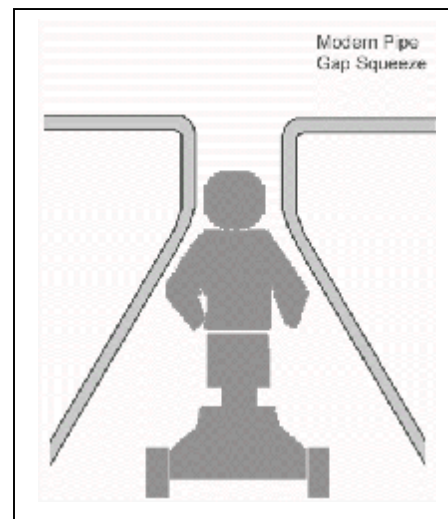


2.1.15 Pipe Built Gap Squeeze

These are generally accessible to all, however, in some cases the gap can be too narrow for people with larger chest measurements.

They are suitable for calming cyclists and most motor cyclists while excluding horses and motor vehicles.

The critical elements of the design are the tapered internal width and the positioning of the internal steel pipe (980 to 1140 above ground level) which restricts access by motorcycles but allows pedal cycles to pass through. Motorcyclists may be able to overcome this by shortening the handlebars.



2.1.16 Three Valleys or K Barriers

A variation on the pipe squeeze and has the same inherent problem for larger people in that the gap is too narrow for some people to pass through.

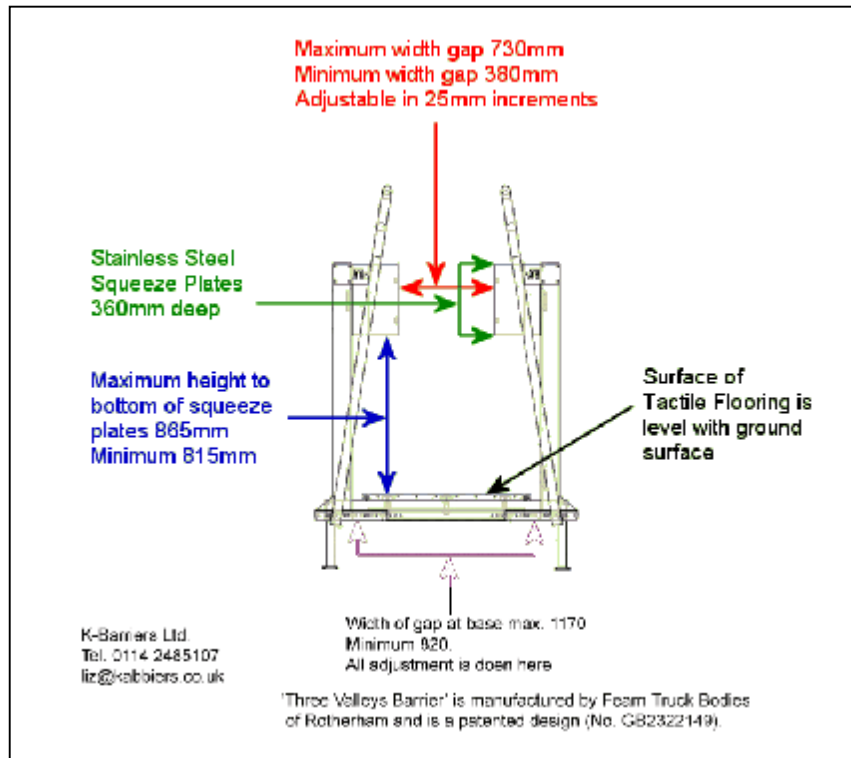
The stainless steel plates also form a hazard for people who pass through due to sharp edges which can be bumped into.

All stainless steel construction is good for maintenance but can pose a problem for some people with low vision.

This design allows access for pedestrians,

single pushchairs, single baby buggies, cyclists, and users of manual and small motorised wheelchairs but restricts access by motorcycles. It is inaccessible to double children's pushchairs, horse riders, scooters, tricycles, and types of larger motorised wheelchair with a hood. Some concerns have been raised that this design of barrier might be a hazard to visually impaired people.

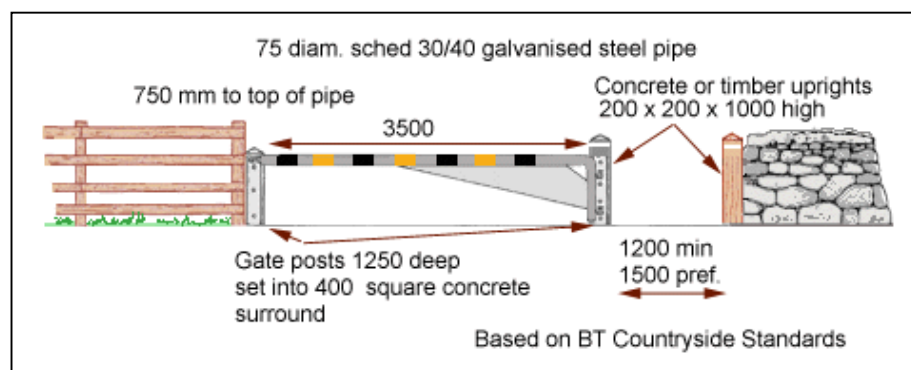
'Three Valleys Barrier' is manufactured by Fearn Truck Bodies of Rotherham and is a patented design (No. GB2322149).



2.1.17 Vehicle Pole Barrier

Developed by BT Countryside Standards.

While suitable for most purposes it is unsuitable for people using a seeing eye dog as the dog will walk under the pole.

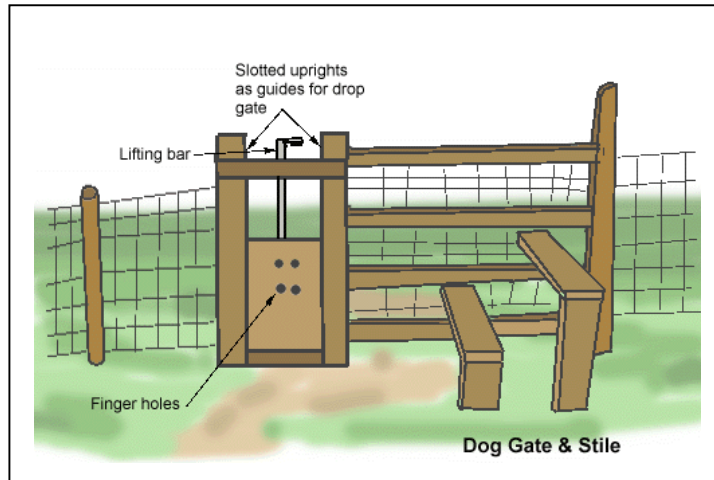


The BT 725 mm high support columns should be at least 1000 mm height for safety of people with low vision and hearing. The top of posts beside the footway should have contrasting/reflective bands to aid vision.

2.1.18 Dog gates

To save lifting dogs over stiles and wire fences or risking injury from catching their hind legs in the top wires. The dog gate can be clamped onto any wire fence; it provides a permanent gate, which drops by its own weight to close. The dog gate must be totally stock proof when closed.

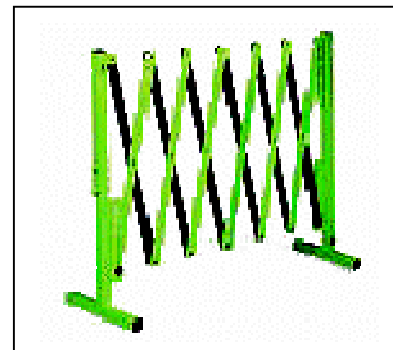
Care should be taken in the placing of these gates so that they can be opened by path users.



An alternate fence crossing or gate is necessary on public paths for people with mobility impairments and mobility vehicle riders.

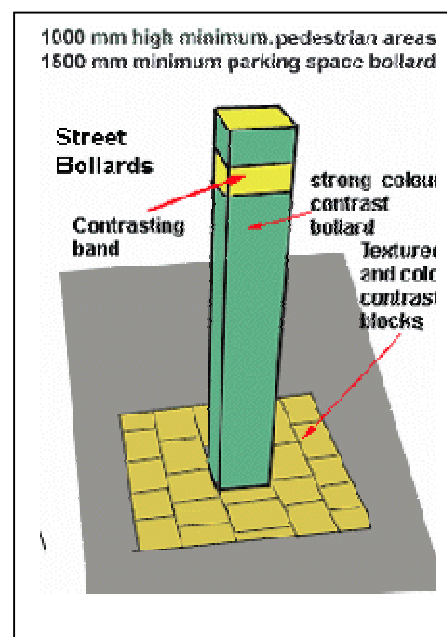
2.1.19 Temporary Concertina Gates

These gates can be a hazard for people with low vision or hearing when placed across pedestrian or cycle routes. They are generally low height and with small bar cross sections making them difficult to see. The projecting feet may also form a tripping hazard.

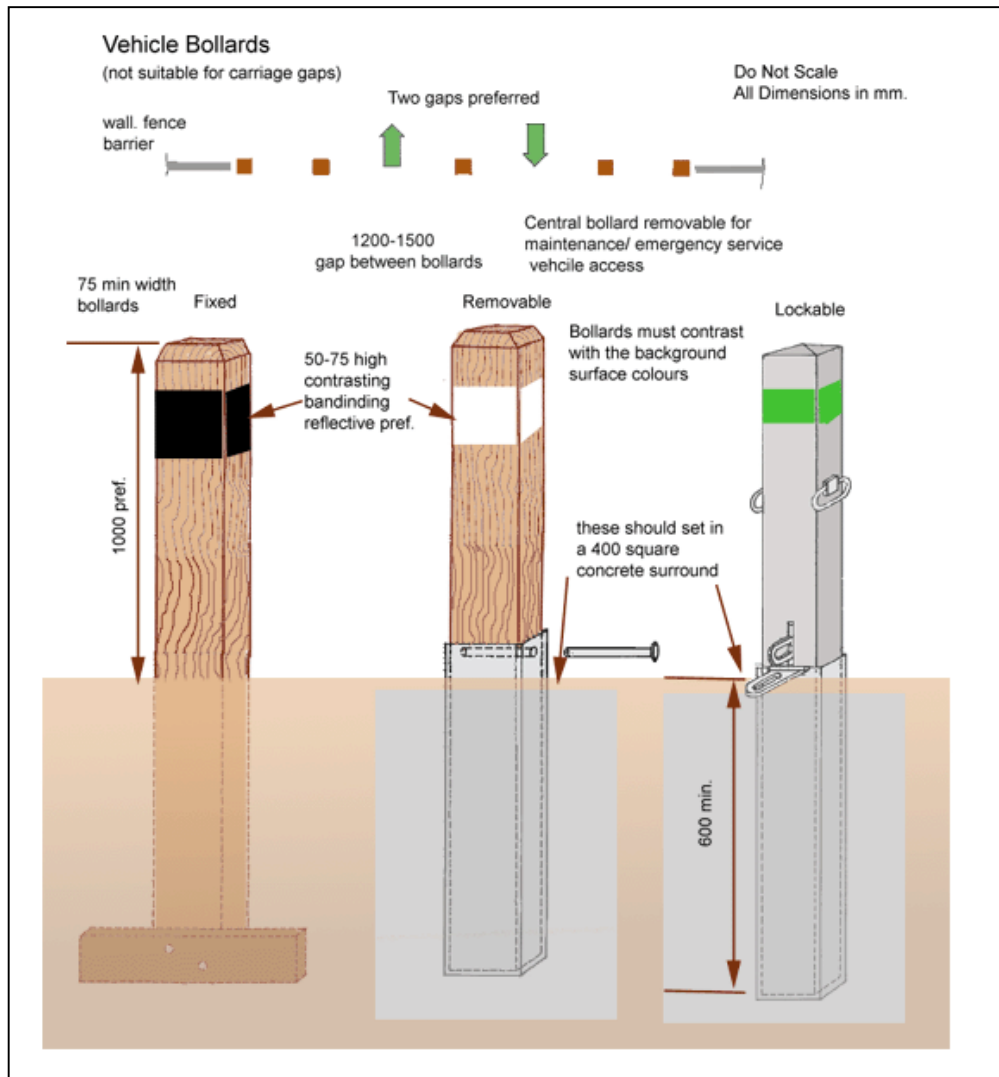


2.1.20 Bollards

Bollards can be authorised as a means of enforcing permanent TROs (Traffic Regulation Orders) or under Highways Act 1980 (s66) to safeguard users where there is a need to deter or prevent vehicular access. Bollards can be made from various materials including pre-cast concrete, timber or metal. A bollard placed centrally is the simplest method, so as to provide at least one gap of 1525 mm. Bollards should be 1000 mm minimum high. Be at least 75 mm diameter and contrast to their background. A contrasting colour band 75 mm high should be placed near the top of the Bollard for vision.



Removable bollards can be used in areas where there is a



maintenance requirement and restriction of access is also necessary. Removable bollards should be locked with keys supplied and kept by the responsible management.

In circumstances where repeat abuse of concrete or wooden bollards takes place the following solution is suggested. Metal bollards standing 1500 mm above the ground and connected beneath the ground by a steel bar, standard dimension of 150mm square section steel tube.

All types can be made more visible by attaching reflectors and or contrasting paint. This is essential for people with low vision and assists people reversing vehicles. Stainless steel is not a good choice as this can be invisible under certain light conditions and in sodium street lighting.

2.1.21 Gaps

- On footpaths and cycle ways, the minimum width of the gap should be 1200 mm;
- On bridleways, the minimum width of the gap should be 1525 mm.

The British Standard (BS 5709) is now out of date as it does not cater for people using mobility aids, mobility vehicles and double baby buggies.

Some of the key points of the standard are:

- There should be no barbed wire or electric fencing inside, or within one metre of the gap or structure or the manoeuvring space to either side of it;
- The ground through the structure, and within 2200 mm (1000 mm BS 5709) of it, should be kept free of surface water and provide a firm level surface;
- Structures should be set back from vehicular roads for a distance of at least four metres for bridleways and at least two metres for footpaths (the latter should be increased to four metres where a footpath is likely to be used by groups of walkers or directly crosses a road or mobility scooters, outdoor powered and sports wheelchairs are users), the four metre spacing should also be used for cycle ways as tricycles and recumbent cycles need greater space;
- The structure should not possess any projections that may harm users or animals;
- Structures should be constructed and maintained so that they have adequate strength and rigidity.

2.2 Fences

2.2.1 Barbed wire fence

A barbed wire fence or exposed barbed wire erected across a public right of way without an adequate means of crossing is an offence under the Highways Act 1980. If the fence is necessary for agriculture a suitable crossing point for path users must be provided, this will require authorisation from the LA.

If barbed wire is used, it should be fixed to the side of the post away from the public. Mild steel, twin strand barbed wire is recommended in preference to single or twin strand, high tensile (HT) barbed wire. Some types of HT twin strand barbed wire have a tendency to 'untwist' and become slack. Single strand HT barbed wire can become brittle.

Where a barbed wire fence is situated alongside a right of way it may be a danger or nuisance to path users. If this is the case you will be

required to make the fence safe or notice will be served requiring its removal.

2.2.2 Electric fences

These can be hazardous for people with pacemakers, with low vision or hearing. They are also a danger to children and mobility vehicle riders due to their height.

The Highways Act and the CROW Act both require electric fences to be safe and away from casual contact by passing people.

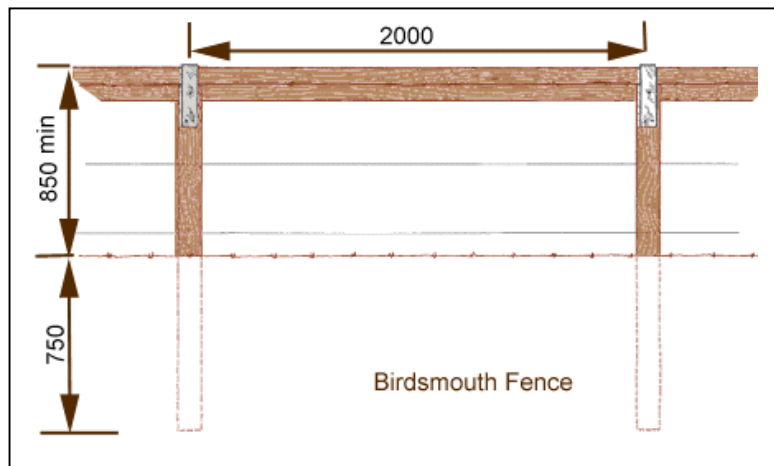
2.2.3 Timber Fencing

2.2.3.1 Birdsmouth Fence

The Birdsmouth fence is more suitable to formal parks and similar locations.

It should not be used along routes where people may hold it for support unless it is well maintained with no splintering. These fences should be 950-1050 height.

Fences should have a minimum of 850 mm height (1000 mm preferred).

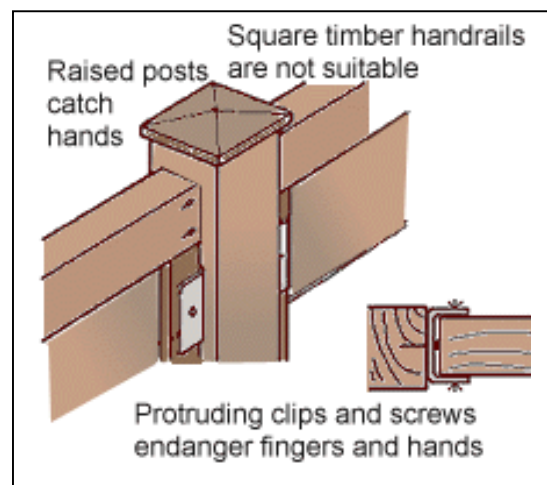


Where holding the fence for guidance is possible these fences must not be used as the retaining bands and bolts are a finger hazard.

The lower wires (or timber rails) are optional to aid exclusion of children and dogs. The posts are 150 x 100 mm section with the top rail 100 x 100 mm.

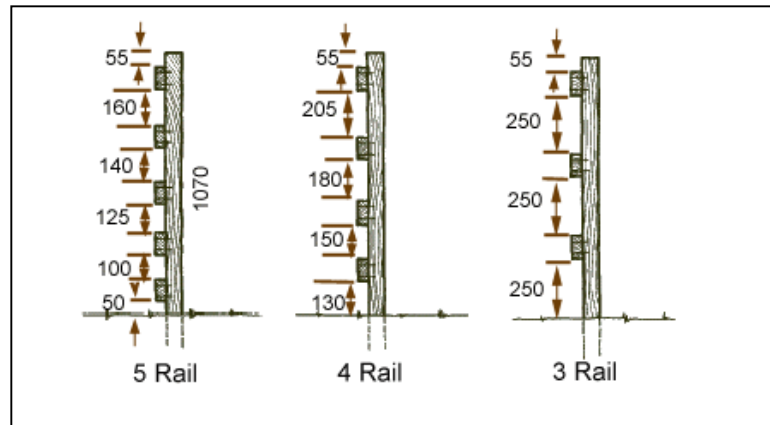
A single top rail version of these fences (450 mm high) can be used in locations where people will not walk into the fence as fences lower than 850 mm are a tripping hazard.

Where timber fences are used as combined handrails the standard designs can cause problems for disabled and older people. Many components can catch fingers and hands.



2.2.3.2 Timber Rail Fences

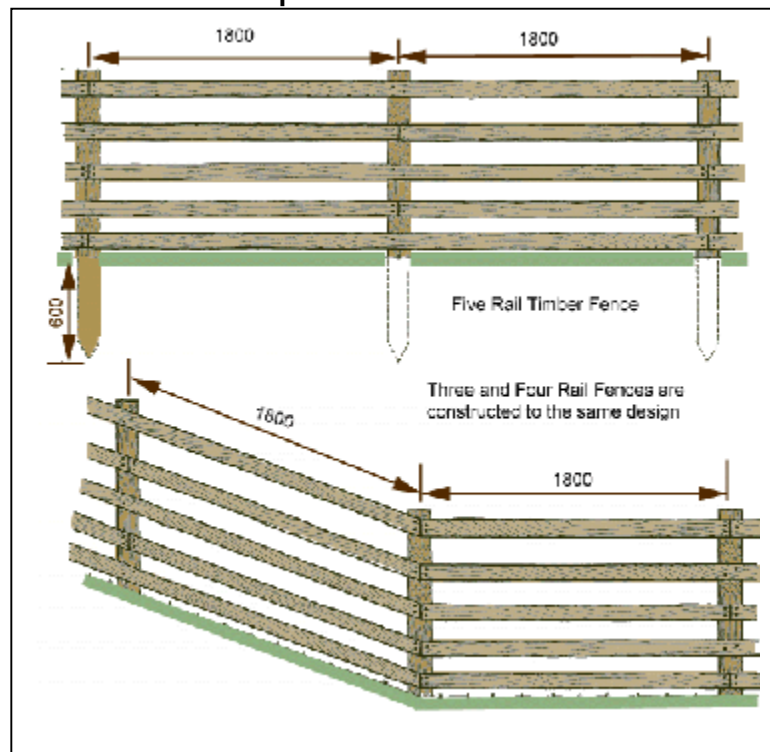
Timber Post and Rail Fences are more visually appealing and recognisable than post and wire fences. They are suitable for use in parks and recreation areas, bordering paths and similar locations.



Where timber 3 and 4 rail fences are used to border footways consider fitting a tapping rail between 50 and 150 mm above the surface.

The main use for three rail fences is to provide a visible break between people and animals or fields.

These are not suitable for small livestock (sheep, lambs and calves,) as these can pass between the gaps. They can be suitable for horses (nailing a wire along the top rail helps reduce gnawing) and cattle (although rails may be ripped away by horns when the animal puts its head through the rails).



Four Rail fences are proof against horses, cattle, calves, sheep, and most lambs.

Five Rail fences are stock proof including all breeds of lamb.

Barbed wire may be used along the top of the fence. It must be above the timbers so that it can be seen and not gripped by people.

Timber rail fences are versatile and can accommodate many land forms. To reduce cost lower rails may be replaced with wires (see below). Maintenance is easy and relatively cheap to perform. Rails are usually on the same side as the stock to improve resistance to damage by body pressure and kicking.

Typical timbers are Posts with pointed ends - 125 x 60, 125 x 75, less common 100 x 75

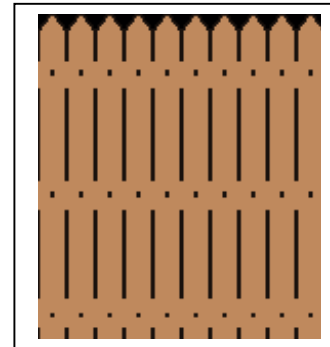
Rails 3600 mm long – most common 88 x 38, also 75 x 25, 100 x 35

Half round rails (usually machine rounded) can also be used.

At significant changes in direction, two posts are used with mitred rail ends, rather than nailing all rails onto a single post.

2.2.3.3 Picket Fences

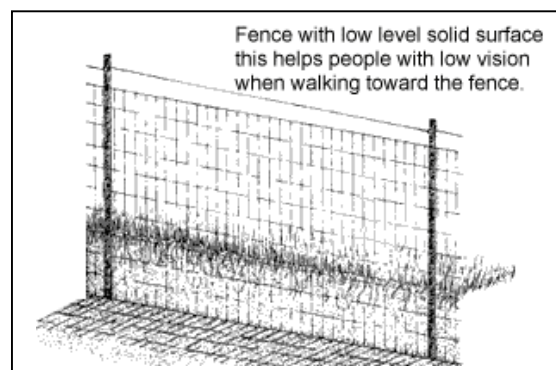
Picket fences are decorative and common in some housing areas; they should not be less than 1000 mm height. The gaps between lathes should be less than 10 mm or greater than 50 mm so that they do not become a finger trap.



2.2.4 Wire Fences

The use of wire fences needs to be well planned as a low wire fence in line with a travel route can be missed by people with low vision and can be hazardous for people with low hearing.

See also Barbed Wire and Electric Fences above



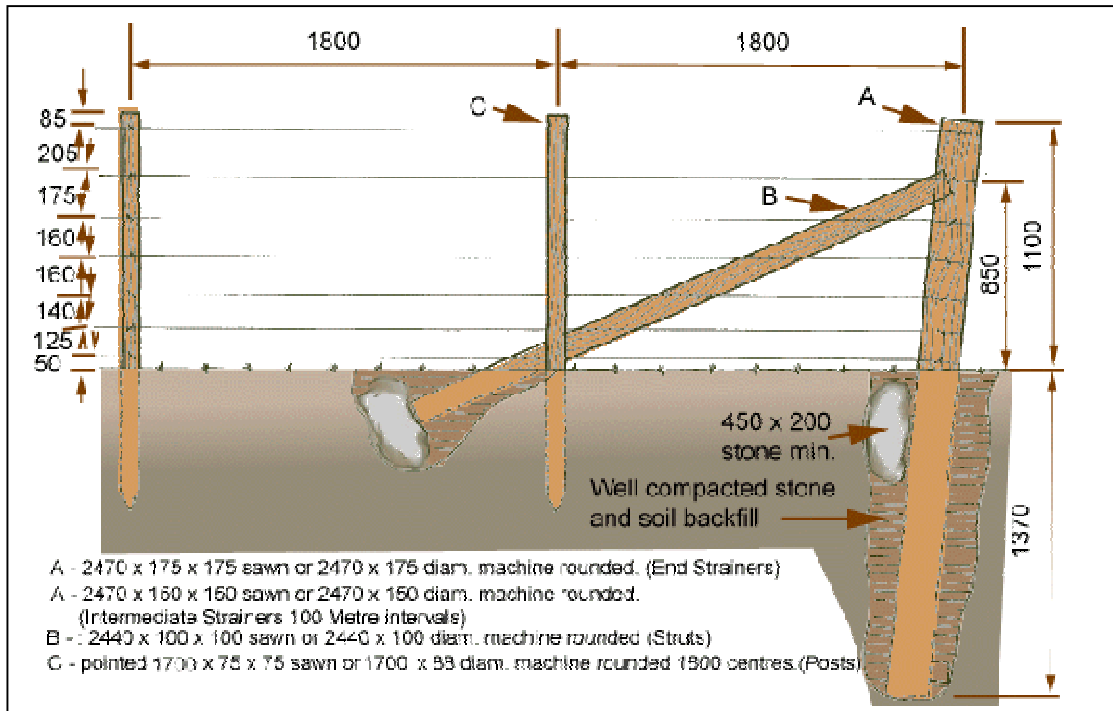
2.2.4.1 Post & Wire Fence

Probably the most commonly used type of fence in UK. Is proof against lambs, sheep, cattle and calves, it is preferred on undulating ground because of the close post centres.

The top or top third of wires may be barbed when used with cattle. The barbed wire should be on the side of the post furthest from members of the public.

Round posts are not recommended due to the difficulty of fixing strainers and rails.

Wires are 7 no. 10 or 12 gauge high tensile steel. These are fixed to the posts using 38 mm staples. Angle staples to prevent splitting the post timber these should not be hammered fully home so that the wires are free to move on intermediate posts.

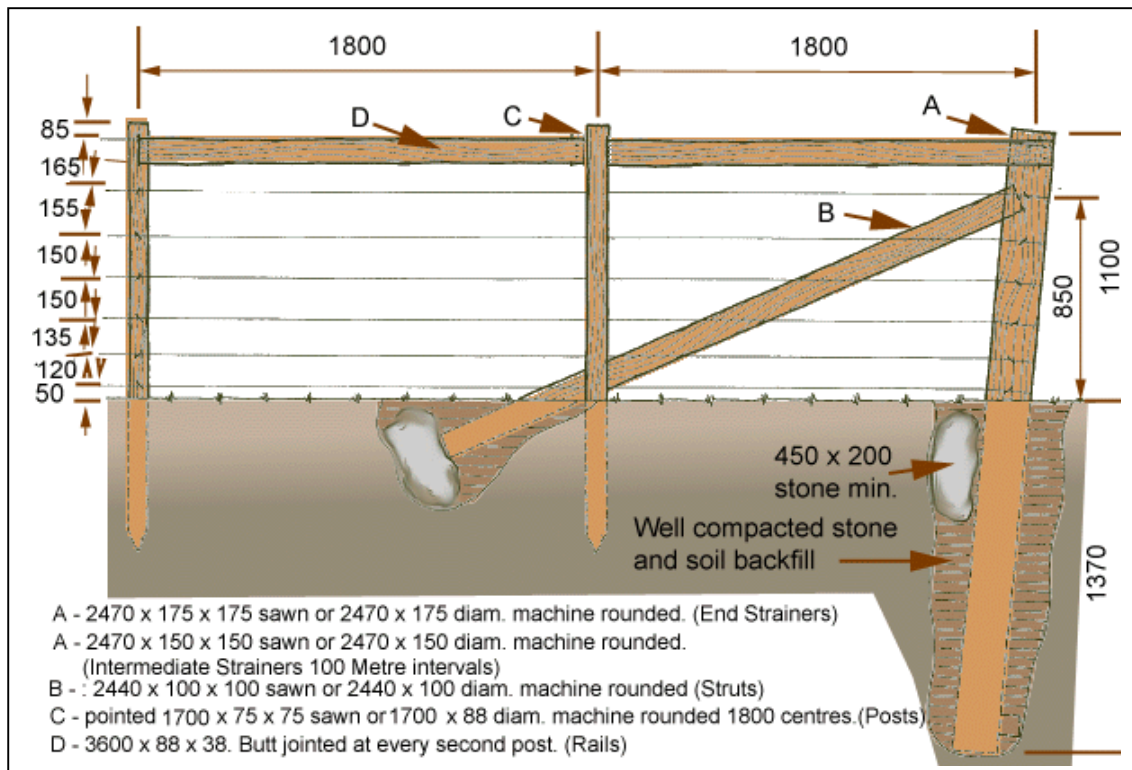


On long straight runs over level ground the intermediate posts can be increased to 3600 mm centres. Some posts are also replaced by droppers, these are posts which touch the ground but do not penetrate. These can be a problem where cattle are penned. This also reduces the number of holes to be dug in hard and stony soils.

The effectiveness of fences can be improved by running a 300-400 mm high stone and soil wall or berm below the fence. The wall also improves recognition for people with low vision and hearing.

2.2.4.2 Post, Wire and Rail Fence

This style fence is more suitable where members of the public are likely to be present. It has a better appearance, is more easily seen by people with low vision and hearing.

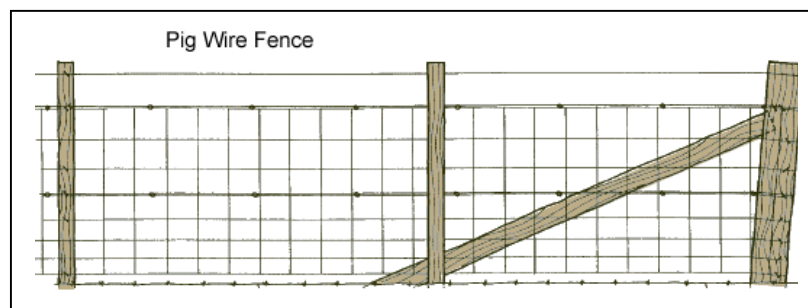


Top rail is only nailed to the strainer after the wires have been tensioned and the fence has bedded in. They are butt jointed at every second post. A plain wire may need to be stapled to the top of the rail where horses are present to prevent them gnawing the rails.

If a barbed top wire is used to deter cattle it should be on the side away from the public, visible and not hidden behind the rail.

2.2.4.3 Pig Wire Net Fence

The wires on either of the forgoing fences can be replaced by use of 'pig wire'. These are not as good on undulating or sloped ground as the wire panels may become distorted. It is easier and less time consuming to erect than wire fences and remains stock proof even if slightly distorted or slack.

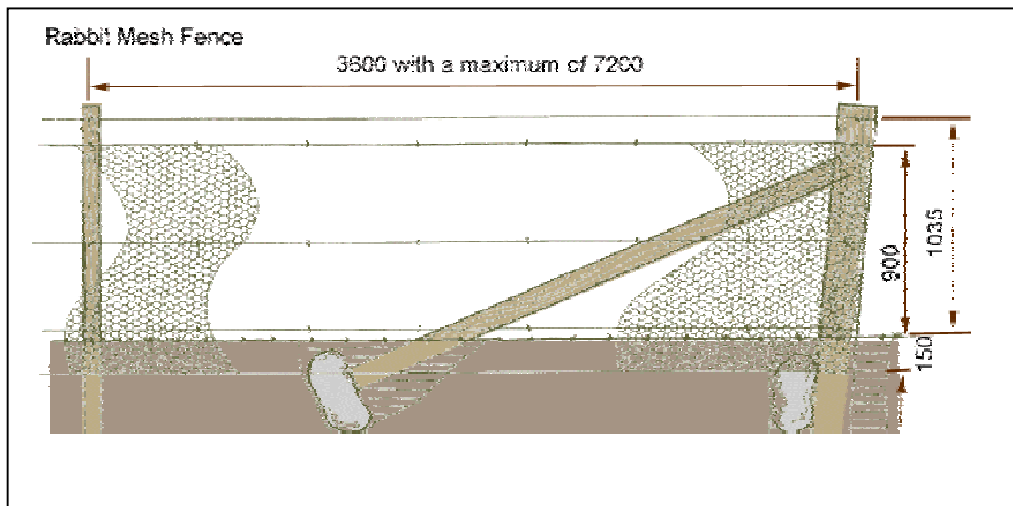


Posts are necessary every 1800 mm and this net is not suitable for use with unseated droppers.

The top wire and an additional wire fitted to the top of the net may be barbed for some purposes. The same care needs to be employed as for other barbed wire installations.

2.2.4.4 Rabbit Wire Mesh Fence

This is not a stock fence as cattle, calves and sheep will all damage the construction. These fences are normally used to provide 5-10 years protection for young trees and other plantations.

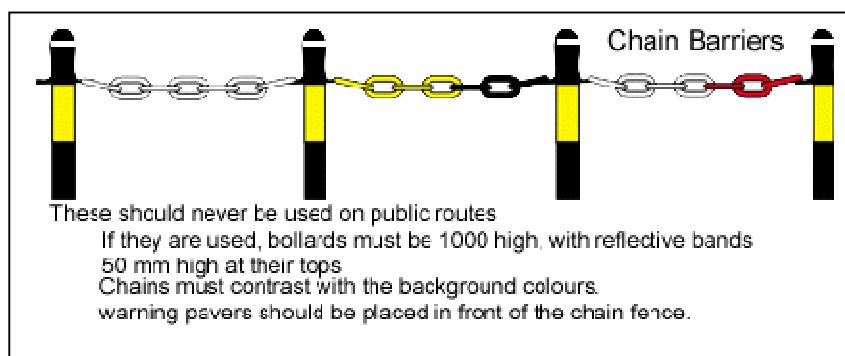


If sheep are likely to be present consider adding pig wire on the side of the fence nearest to the sheep. Where cattle and sheep are likely to be in the vicinity an additional fence of one of the forgoing types should be sited 2 metres (or more) before the Rabbit Fence.

The wire should be folded outwards at the bottom and buried to at least 150 mm.

2.2.5 Barrier Chains & Ropes

Use of low level chain and rope barriers especially across footways is a major safety hazards, as even when provided with



colour contrasts these are often unnoticed and cause any pedestrian to trip. They are especially hazardous to people with visual and hearing impairments and if used should have tactile continuous warning pavers 400 mm wide and 400 mm from the chain/rope.

2.3 Steel Barriers

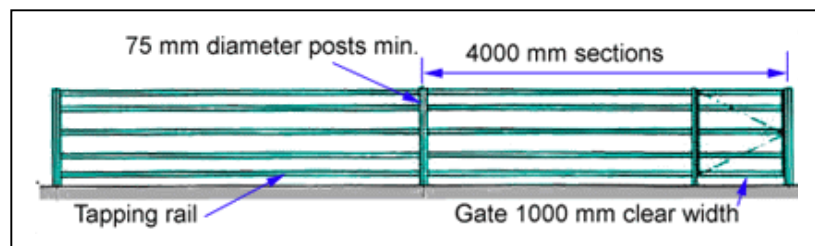
All gaps should follow the 150 mm diameter ball rule with the exception of a max 75 mm gap between the tapping rail and the ground. All finished edges should be smooth and not form traps or leave sharp edges.

Additional handrails should be fitted to the inner face where required.

As the barriers are not intended a handrails the post top can protrude above the top rail.

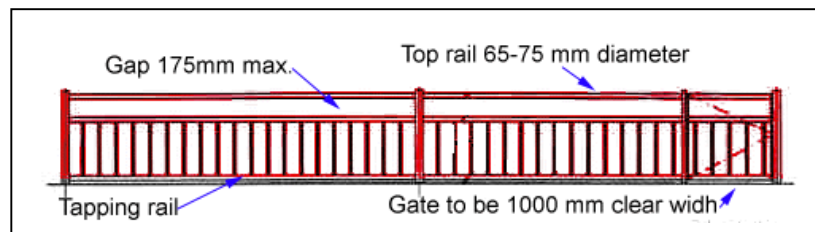
2.3.1 Horizontal Rail

This is suitable for pedestrian barriers and fencing where children/people climbing on the fence will not place them at risk of injury or reduce security.



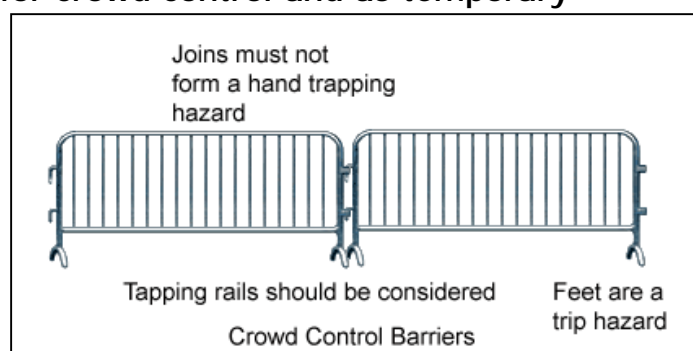
2.3.2 Vertical Rail

Vertical baluster fencing is preferred for safety reasons where children/people climbing the barrier may be placed at risk and to improve security.



2.3.3 Steel Crowd Barriers (Mills barrier)

These are commonly used for crowd control and as temporary pedestrian control barriers. Their use should be for limited periods only and following a risk assessment. Consider providing warning where these are deployed for people with visual and mobility impairments.

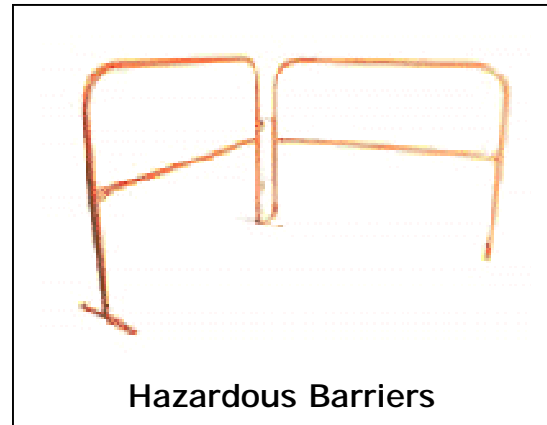


The feet can become a tripping hazard in crowds and for people with visual impairments. Feet should be colour contrasted to the ground and tapping rails fitted to help reduce tripping hazards.

Care must be taken to ensure that the foot spread does not reduce the footways widths below 1200 mm. Include angles between verticals should not form trapping hazards for hands.

Galvanised steel and aluminium barriers do not provide good colour contrast in all locations. The need for colour emphasis should be assessed in relation to the place where they are to be deployed.

Light weight crowd barriers pose the same problems as the above with the potential for falling and low visibility due to small diameter tube added.



2.3.4 Steel Security Fence

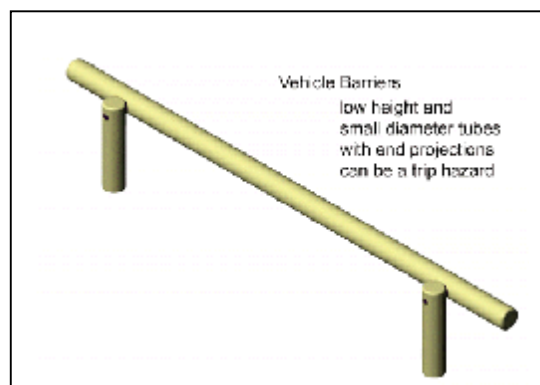
These fences should be used with care when in line with pedestrian or cycle routes as they can cause injury. The lack of continuous tapping rails and the sometimes high bottom rail can be a problem for people who use tapping canes when the fence faces the footway.

Sharply pointed elements must not be used where people may need to use the railing for balance assistance. They can also be dangerous where cyclists horse riders or skateboarder's could be injured.



2.3.5 Steel Vehicle Barriers

Low level vehicle stop barriers are often used in car parks to limit vehicle movement. These barriers due to their low height, small diameter tubes and the end extension are a hazard for people with low vision and hearing. They pose a hazard for all pedestrians at night and during low light periods.

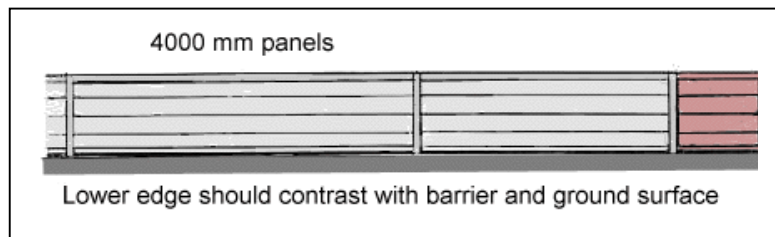


2.4 Concrete Barriers & Fences

2.4.1 Concrete Plank

Concrete barrier/fences are useful for long term low maintenance fencing.

Lowered sections may be needed in places such as view points so that seated and small people (children) can see the view.



2.4.2 Vehicle Barriers

Used for separating vehicle flows, these barriers are also used to protect pedestrians from motor traffic safely.

Care must be taken to ensure people do not walk into the end of the barrier due to low contrasts. Contrast or highlighting should be used.

The bottom flare may also be a trip hazard. Consider highlighting the bottom edge for visibility.



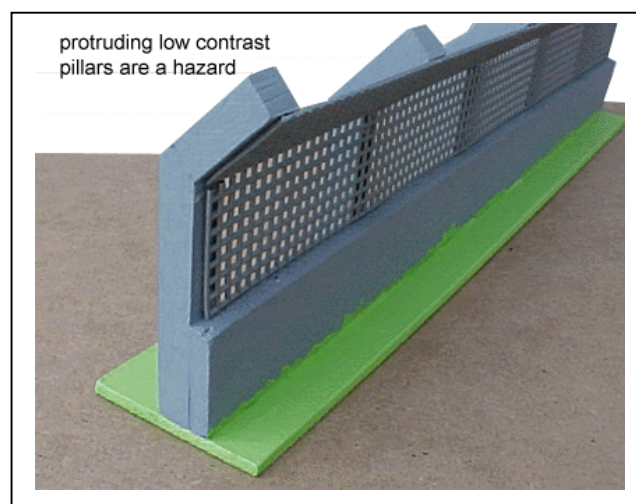
Barrier use should not restrict pedestrian footway width below 1200 mm for short distances and 1800 mm (2200 mm preferred) on sections longer than 3000 mm.

2.4.3 Vehicle/Pedestrian Barriers

When selecting barrier styles, be aware of protruding low contrast pillars which are a hazard to people with low vision.

They are also a safety hazard for children and wheelchair riders where the angled pillar is at head height.

All pedestrians and cyclists are at risk of bumping into the protrusions where the barrier borders a footway. Use of barriers of this design is not recommended in any location open to the public due to their poor design for safety.

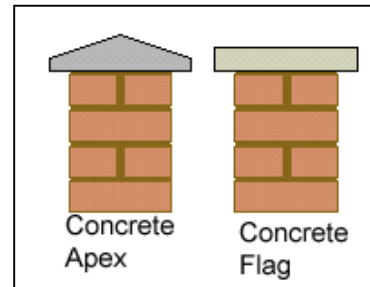


2.5 Walls

Walls and concrete barriers which are not intended to exclude wildlife should have holes at their base every 5-10 metres to permit amphibians, rodents and other small animals to pass through.

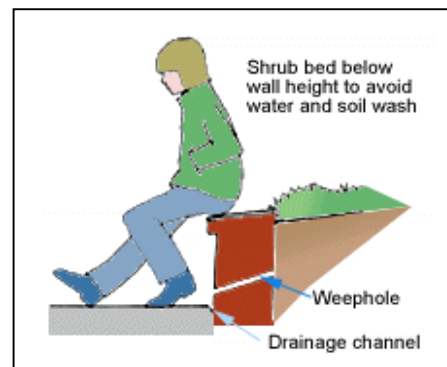
2.5.1 Low Walls

Low brick and stone walls can be useful in providing seating along pedestrian routes. Where these are less than 1000 mm high they should not be in line with walking direction of cyclist routes as they can form a tripping hazard. The flat flag forms a better seat by is likely to hold rain water.



2.5.2 Planter Walls

Low walls around plantings can provide seating; consider providing walls at various heights to suit people of differing leg lengths. These low walls should not be inline with pedestrian or cycle routes as walls less than 1000 mm high can be a tripping hazard.

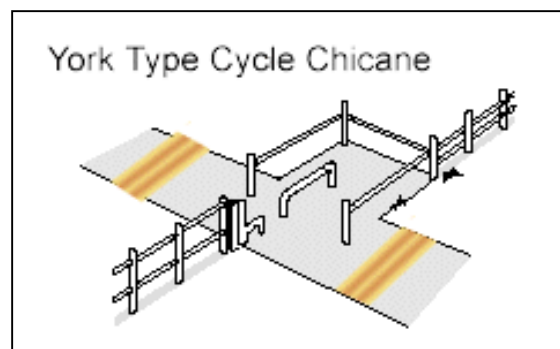


2.6 Chicanes

2.6.1 York Cycle Chicane

Developed by York Council.

The York type cycle chicane illustrated here can be suitable for use by both cycles and wheelchairs, however, due to it's low level barriers it is a tripping hazard to pedestrians with visual and hearing impairments. Where these are installed tactile warning tiles should be placed to inform people that there is a tripping hazard ahead.



The 380 mm pedestrian gap is too narrow for people with mobility aids, older people, mobility vehicles, pushchairs or baby buggies.

A 150 mm high tapping rail should be added to the bottom of the box rails.

An additional horizontal bar is needed to prevent guide dogs walking under the barrier.

The vertical and horizontal members should be colour contrasted to the background, with visibility contrasting/reflective bands.

Any barrier in a walkway which is less than 1000 mm height, and colour contrasted to the background forms a tripping hazard.

The chicane needs to be designed with sufficient space for a mobility vehicle to make a 180° turn together with sufficient space for the two 90° turns at the entry where these vehicle can be expected to share the chicane, i.e. shared footways and cycle paths.

Cycle racks can also form a tripping hazard and should be sited out of circulation routes and even than provided with colour contrast to their background. Stainless steel and aluminium finishes tend to merge with the background and can cause reflection glare problems.

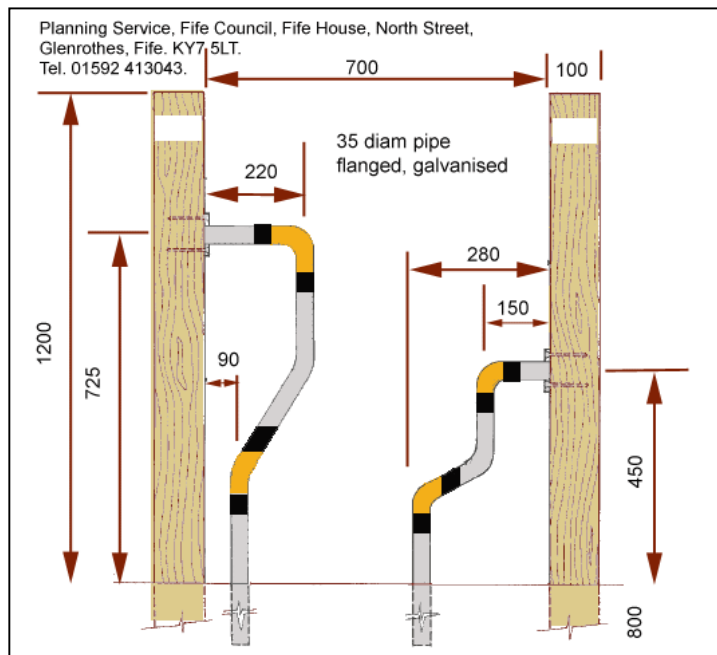
Provision for access by other users, such as pedestrians, people with prams and pushchairs (single and double), horse riders and users of manual and motorised wheelchairs, should therefore be accommodated, as appropriate, through the installation alongside of a kissing gate or other suitable structure.

2.6.2 Fife Cycle Chicane

Developed by Fife Council.

This provides an alternative cycle access route. It is totally inaccessible to many others, and an alternative route will need to be provided.

Colour contrasts are essential for visibility.



2.6.3 Neath Scooter Chicane

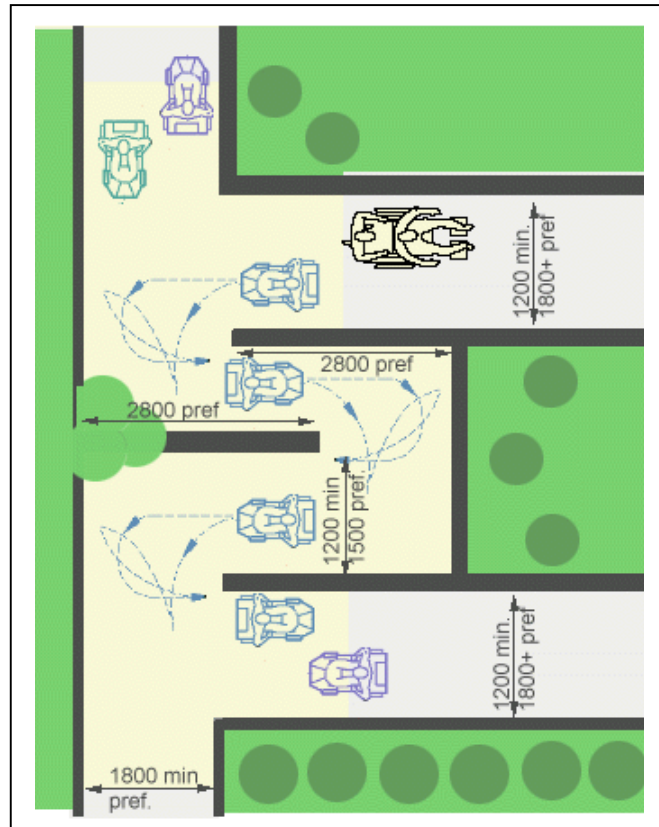
Developed by Neath Port Talbot Access Group.

The Scooter Chicane is designed to provide access for most mobility vehicles, some of those with larger turning circles may find the space allocated too small.

Today where it is possible space needs to be provided for use by sports wheelchairs (up to 1800 mm long x up to 1500 mm wide), mobility scooters and out door powered wheelchairs with larger turning requirements and larger ground templates.

The chicane should be on a level site with a firm, smooth well drained surface.

There should be adequate level space at the approaches and paths for a couple of mobility vehicles to wait while others negotiate the chicane. Level areas are shown in yellow, grey areas can be inclines.



Barriers should be at least 1100 mm high or higher to deter horses from jumping them; 12-1400 mm high guard-rails should be installed on any sides where there is a drop. The rails should be designed to prevent guide dogs walking under the bars and leading their companion into the barrier. Barriers can be fences (wire, steel, timber), concrete or brick walls.

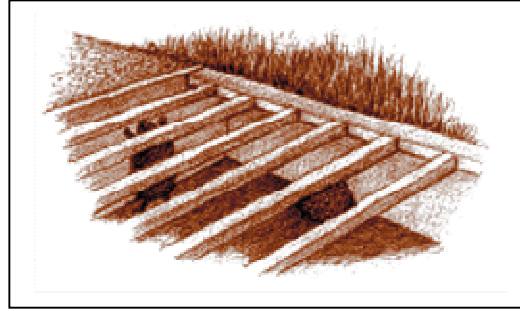
This chicane is designed for motor vehicle exclusion and speed calming only it does not exclude cyclists (except some large specialist tricycle and reclining models) , nor does it fully exclude motor cyclists, ATVs or horse riders. It is not intended to form a stock barrier.

2.7 Cattle Grids

Cattle grids are unfriendly features of the countryside for all people with disabilities where they have no bypass gates. (Note: Some cyclist organisations are promoting cattle grids without bypass gates as they prefer to bump across the grid to opening and closing a gate. Managers should remember that others besides cyclists have to be catered for).



Any cattle grid must have a bypass gate which secures the stock while providing an accessible route for people with disabilities, mobility vehicles and pushchairs etc. Managers should also be aware that sheep are not obstructed by cattle grids and deer may leap them.



Cattle grids should have internal ramps to allow small rodents and other animals to escape from the pit.

Tactile warning tiles and colour markings (white/yellow lines) should be sited before any cattle grid set into a walkway. Where a walkway borders a cattle grid there should be a 1100 mm high guard rail provided to prevent pedestrians stepping onto the grid.