

5.15 Critical Dimensions for Paths Running Adjacent to Operational Lines

The sketch shows two aspects of a path running alongside a singled operational railway, or running parallel to the railway through the side arch of a bridge in order to by-pass a major road crossing. The minimum dimension allowed by the Railway Inspectorate is 1.624m from the fence to the inside face of the near running rail. However, there are a number of considerations that may lead to a larger dimension being specified. These include the frequency and speed of trains and the type of trains and the consequent likelihood of doors accidentally opening. It is most unlikely that British Rail would agree to paths beside high speed lines, beside electrified lines and to such paths using any form of level crossing.

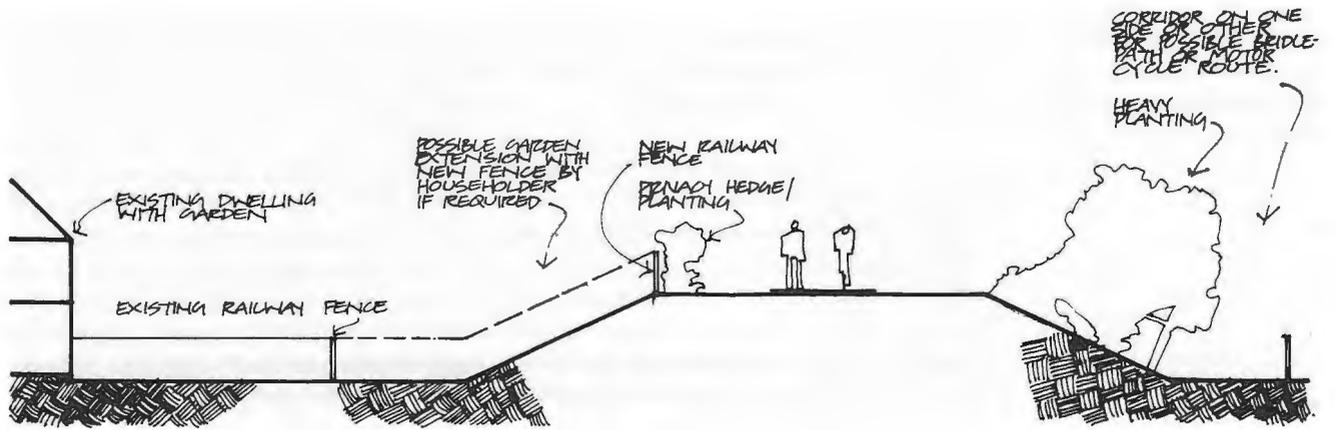
The exact position of the fence can be critical on embankments where there is no space to move outwards. In cuttings, this is not usually so, although some care is needed in handling the drainage, and under or over bridges a narrower path can be accepted for the short length involved.

“Rail bridge over Swansea-Neath dual Carriageway”

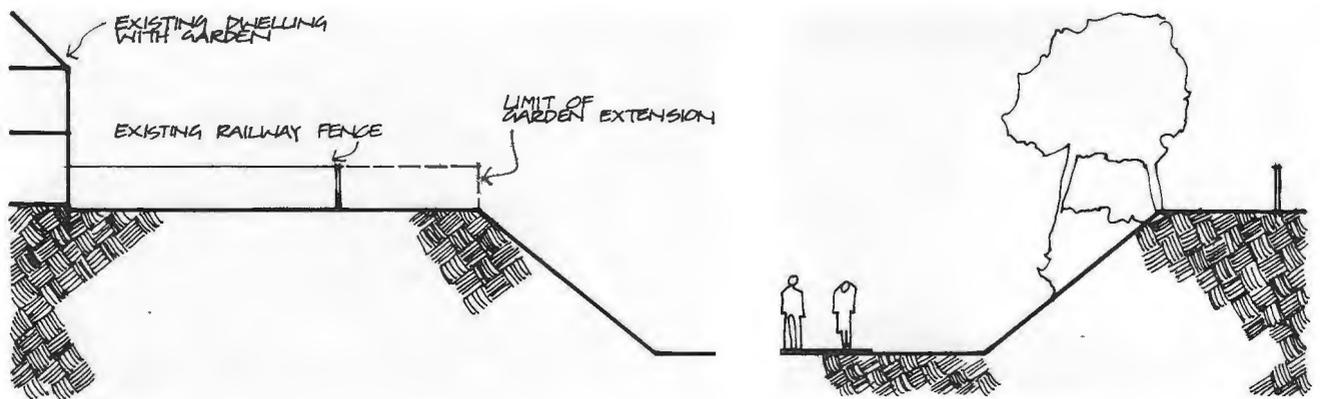


“Rail bridge under Western Boulevard, Nottingham”





Embankment or Level Ground



Cutting

THE EXTENT OF PRACTICAL GARDEN EXTENSIONS IS LIMITED & IT IS PREFERABLE TO KEEP THE LAND AS PART OF THE LINEAR PARK (OVERLOOKING OF GARDENS IS 'NATURALLY NOT A PROBLEM'). IF EXTENSIONS ARE MADE THEY SHOULD BE LIMITED TO ONE SIDE ONLY.

CROSS-SECTION THRO' DISUSED RAILWAY AND ADJACENT PROPERTY

Fig 5.16

5.16 Privacy – the Question of the Balance of Benefit and Disadvantage to Lineside Dwellers

Motor-bikes, rubbish tipping and intrusion or loss of privacy are all common complaints voiced against railway paths by lineside residents. These are problems of neglect and dereliction. On completed paths, these past problems are virtually eliminated.

The sketch opposite shows various ways of accommodating the views and aspirations of adjacent residents. The borders of a typical disused railway tend to be well screened with scrub and trees and it is rare that houses are too obviously overlooked. Even when they are, as on the Hoylake Line (Wirral Way), there is no record of complaint. This must be because in practice it is not a problem, and because, in fact, lineside properties have the particular advantage of safe and direct access to the path and linear park. It is noticeable that usually many owners have made their own door or gate on to the line, so that they can have direct access to the linear park.

In some cases, particularly where the route is on an embankment, careful thought should be given to which side of the formation to position the path, the planting of shrubs, and, very occasionally, the erection of paling or other solid fences.

Every effort should be made to accommodate the desires of lineside residents without sacrificing the continuity of the line.

5.17 Publicity

It is important that people know how to get to the route and that it is well advertised, particularly the early stages when the public are changing their accustomed routes and trips and possibly modes of travel to include the railway route. It is crucial that the route is well used from the start so that it is not vandalised from neglect, so that funds are made available to maintain it properly, and so that the concept of providing routes for cyclists is justified.

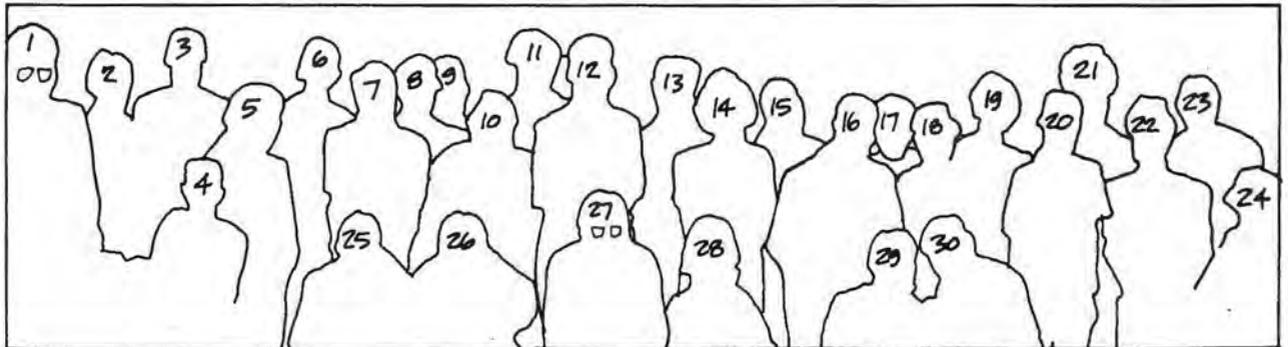
Maps are important. There is a place for a national ‘Routemaster’* type of map so that visitors from another area can, at least, know of the existence of facilities in the area which they are visiting. The Cornwall County Engineer has reported that very few cyclists are using the recently opened Wadebridge to Padstow railway path. This is almost certainly because visiting cyclists have never heard of it – it is not on their maps.

* The Ordnance Survey is considering publishing a 1:625,000 map similar to the main map in this Report which shows all these potential disused railway routes, canal towpath routes, the Cyclists’ Touring Club 365 advisory routes⁹ and week-end round trip routes, usable bridle paths, pedestrian and cycle ferries, towns with cycle facilities, youth hostels, hire centres and other data which would be of particular interest to the travelling cyclist.

GREEN ROUTES IN BRISTOL



Ashton to Pill Route Opening 28 June 1981



- | | | | |
|--|--|---|-----------------------------|
| 1. GEORGE PLATTS
(FORMER CHAIRMAN) | 8. NICK COLLING
(VICE-CHAIRMAN) | 17. FORBES ROBERT-
SON (CHAIRMAN) | 23. DR. MOULTON
(PATRON) |
| 2. CHRIS HUTT | 9. PAUL CHALLICE | *18. DAVID PARKE | 24. SPENCER PRITCHARD |
| 3. SAM ROBINSON | *10. STEVE JOHNSON | 19. WILLIAM WALDE-
GRAVE M.P. (PATRON) | *25. ROGER KEELEY |
| 5. JULIA COLLING
(FORMER VICE-
CHAIRMAN) | *11. NEIL ALLAN | 20. BILL CLARKE
(HON. SEC.) | *26. PAUL COLLINS |
| 6. DAVID PERRY | *12. DAN VINER | 21. JOHN GRIMSHAW
(HON. ENGINEER) | *27. MIKE KEMP |
| *7. JOHN EDWARDS | *13. TONY ROBERTS | 22. COLIN TARR | 28. GAIL KEMP |
| | *14. JOHN BARTON | | 29. JULIE CHERRY |
| | 15. GEOFF EGGINS
(CHAIRMAN
CYCLEBAG NAILEEA) | | *30. KEITH MITCHELL |

*EMPLOYED UNDER MANPOWER SERVICES COMMISSION PROGRAMMES.

6. Promotion of Railway Bike Paths

Thus far, this Report has set out the extent of the various present uses of disused railways, the opportunities for developing cycle routes along them, and the construction details of the path. However, since so very few cycle routes have been built so far, this section discusses why this has been so, and how the circumstances might change.

6.1 Some Reasons for not Building Railway Bike Paths in the Past

6.1.1

6.1.2

Historically, the cycle lobby concentrated on maintaining its rights to use the public highway. Special facilities were seen as a prelude to legislation prohibiting cyclists from using the highway, or at least certain sections of it.

By the time that it was clear that traffic conditions on the road actually were a major deterrent, cycling itself had so declined in popularity that Appleton, making his study of disused railways (1970), was able to note that although cyclists would be the most likely to benefit from railway 'greenways', an argument against converting railways into cycle tracks is that cycling is a declining activity.

6.1.3

In the 1960s and 1970s, transport policy concentrated its resources into developing the highway system for vehicular traffic. (Indeed, many of the disused railways now owned by Local Authorities were in fact purchased against their possible use for new roads.) Many railway bridges were rather low and narrow and were removed to improve traffic conditions on the road, but at the same time breaking the continuity of possible railway routes and so reducing or even eliminating their value to cyclists. It is possible that had potential cycle routes along the lines been evaluated in terms of the reduction in accident costs, savings in journey time and generation of trips, as were the road improvements below, that then rather less of these bridges would have been demolished.

6.1.4

There does not exist any formal, legal definition and category of what is a cycle path. Thus, when recreational routes on railways were being constructed, they were generally either footpaths (for pedestrians only), or bridle-paths which cyclists may use, but are usually unusable. Since their opening, certain railway footpaths have allowed cyclists to use them, on a permissive basis, but generally the surface is inadequate, eg Tissington Trail, Wadebridge to Padstow and Penmaenpool to Barmouth Junction.

6.1.5

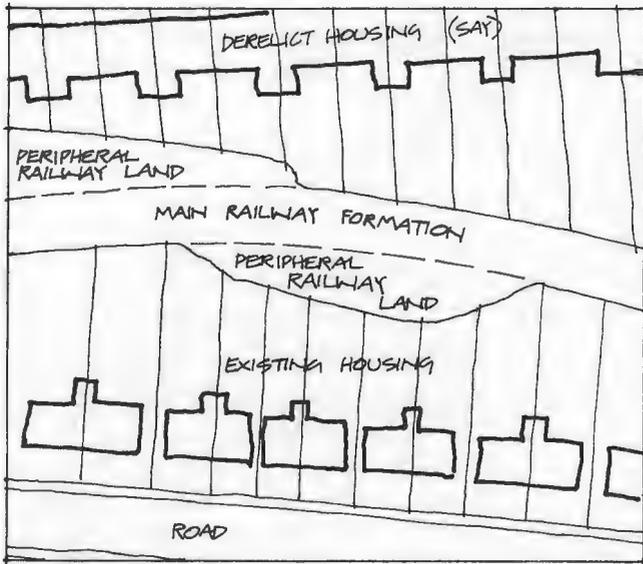
There is also a perceived problem of the dual use of a single path by pedestrians and cyclists, although in areas where it is commonplace, few or no problems appear. On bike paths, pedestrians benefit from the smoother dryer and harder surface required by cyclists.

6.1.6

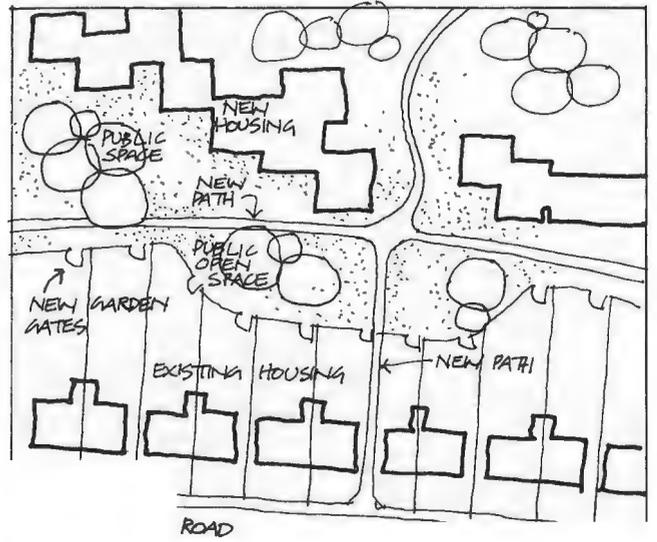
An obvious problem is the lack of funds – or to be precise, the right sort of funds. Recreational and land reclamation committees have been able to arrange for substantial sums to be spent upon the area a railway path runs through, but usually very little on the construction of the path surface itself. This anomaly is said to be the main reason why the ballasted Tissington Trail was spread with 100mm of topsoil and seeded to produce the present wet weather quagmire. It would have been much better, and probably cheaper, to blind the ballast with stone dust. Certainly a recurrent statement on this survey has been the fact that the council would like to make a cycle path on this or that railway line, but that there are not funds – not just insufficient funds, but absolutely no funds.

6.1.7

Competing interests for the use of the line are naturally another problem, but, in fact, there are few situations where it would not have been possible to develop the

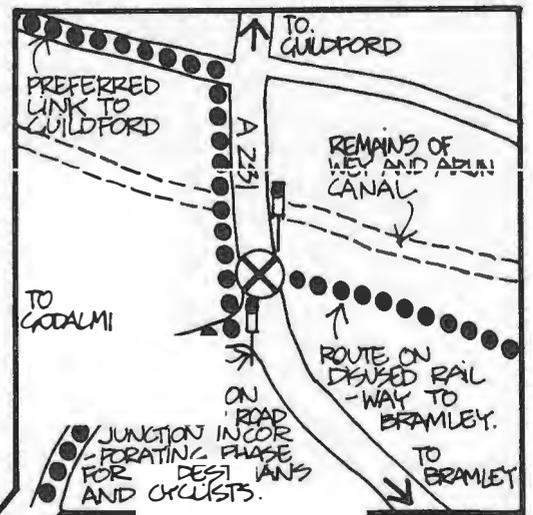
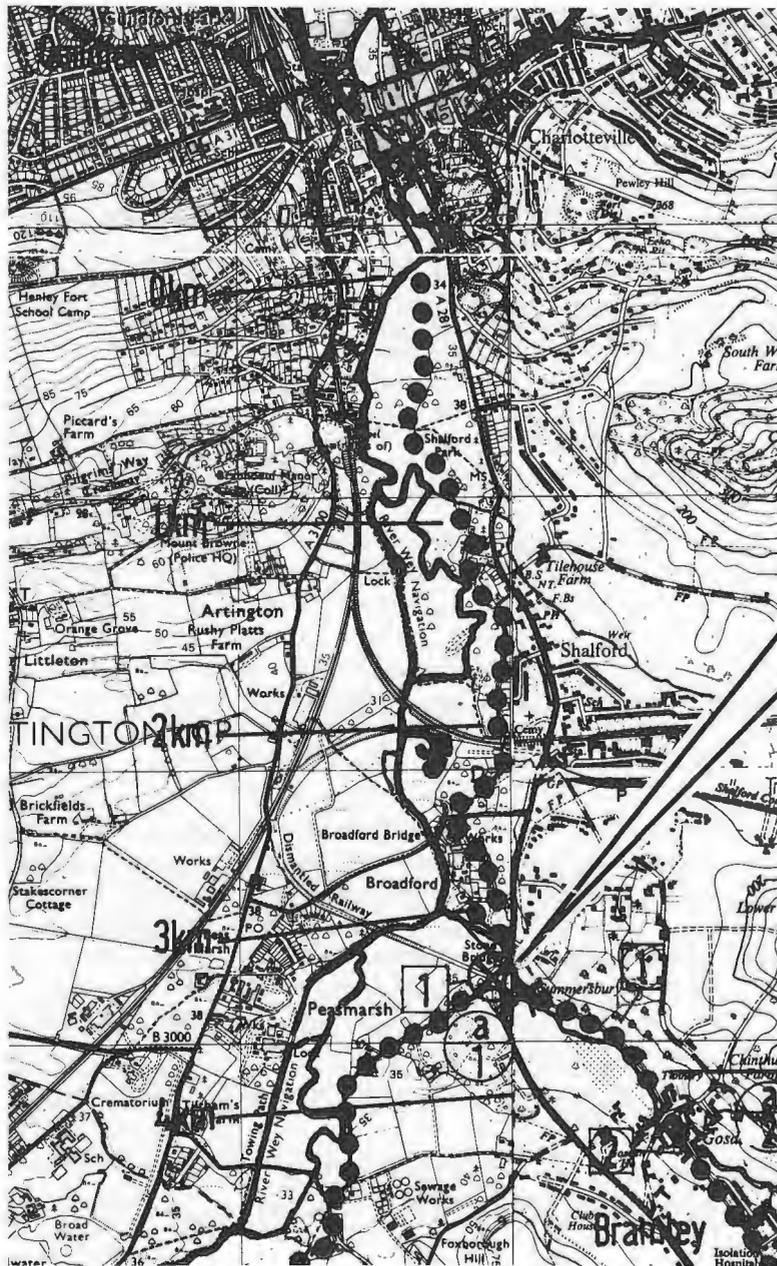


EXISTING



POSSIBILITIES

* CHANGE FOCUS OF PUBLIC USE & CIRCULATION —



EXAMPLES OF DIRECT ACCESS TO RAILWAY ROUTE, LINK FROM END OF ROUTE TO MAIN TOWN, & CONTINUITY OVER A MAJOR ROAD.

Fig 6

housing/industrial estate/park in such a way as to allow the unimpeded passage of a continuous route for pedestrians and cyclists. In rural areas, there is again no physical difficulty, but there may be resistance from agricultural interests.

6.2 The Present Situation and the Changing Circumstances

6.2.1

Since 1973, there has been a rapid rise in the number of cycles sold in the UK (0.5m – 1.4m/yr), a presumed rise in use, and an increase in the number of accidents. This has prompted a desire to provide safer facilities for cyclists, particularly for children and young people who are insufficiently experienced to be on the highway at all.

6.2.2

There is also an awareness of the future and the limitations of motor vehicles. Substantial sectors of the public still do not have independent access to a vehicle, the construction of further road capacity is slowing down, particularly in urban areas where it is clear that there are a number of overriding environmental issues as well as practical and financial constraints. By contrast, the bicycle is perceived as having a number of positive characteristics and there is public pressure to encourage its use. Some of the active cycling campaign groups are positively promoting the development of routes on disused railways, eg the Derby Cycling Group and Cyclebag in Bristol.

6.2.3

Railway paths are a very superior type of path in that they have structures and earthworks not found on ordinary field paths. They also have attendant high maintenance costs. In order to cover these, it is now realised that positive steps should be taken to ensure the intensive use of railway paths through multiple use and the development of positive attractions – car parks, picnic areas, information centres etc. This then leads to the idea of railway paths being strategic all weather all year round routes feeding the network of field paths and bridleways. This sort of route is very suitable for cyclists.

6.3 The Promoters

6.3.1

Central Government have an interest in developing facilities and improving conditions for cyclists as laid out in their recent Consultation Paper (1981). Improved safety is their main concern. They expect that improvements on the ground will be a matter for local concern and initiative.

6.3.2

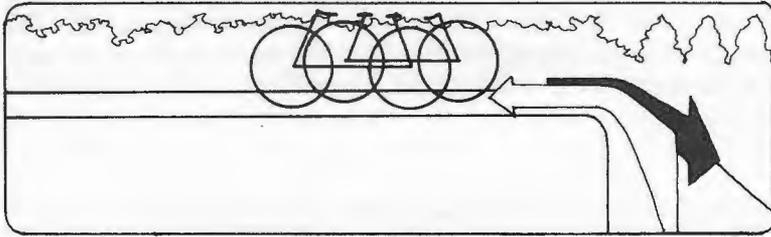
Local Authorities are the only bodies who can actually co-ordinate an effective and practical cycle policy. They determine the details of the transport policy, the relative priority of cycle and highway facilities, the whole planned arrangement of the two which determines the ease with which cyclists can make journeys and the distribution of funds. With regard to disused railways, the Local Authorities are one of the few bodies who have the statutory powers needed to take on the whole of a disused railway, including bridge and fence liabilities. (Another body is an independent Railway company through the means of a Light Railway Order.)

6.3.3

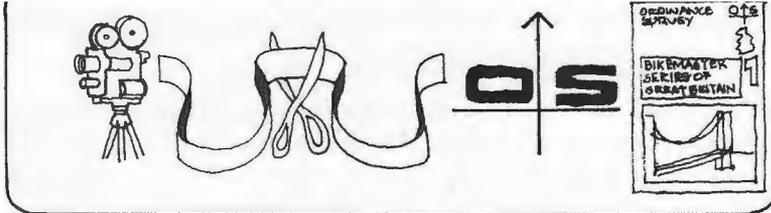
The Cycle Lobby and Environmental Pressure Groups can have an important role in areas where the Local Authorities have not yet committed themselves to positive action. For instance, Cyclebag (the Bristol Group) has not only negotiated and built 15kms of route in Bristol, but has reached agreements on a further 20kms in Bristol, Swindon and Plymouth and has negotiations in hand covering another 100kms of disused railway route. In the last analysis though, these particular interested groups can only proceed on the basis of a healthy partnership with the Local Authority.

6.4 Negotiations

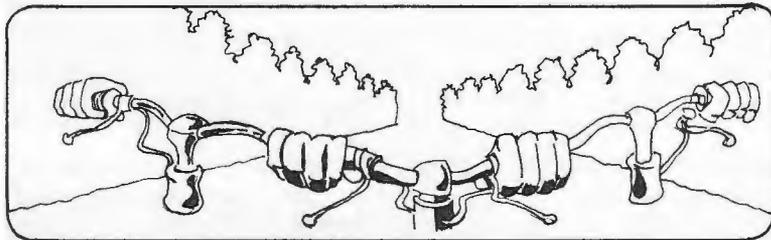
Even if the whole of a disused railway remains in public ownership, there is a considerable labour involved in negotiating through all the details of a successful route. The three key characteristics of a good route are *continuity*, *access* and *links*, all of which may involve difficulties, particularly so if the line is broken or has had parts sold off.



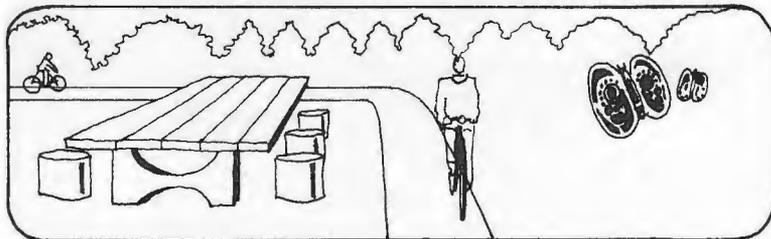
* BUILD SMOOTH ATTRACTIVE PATHS —



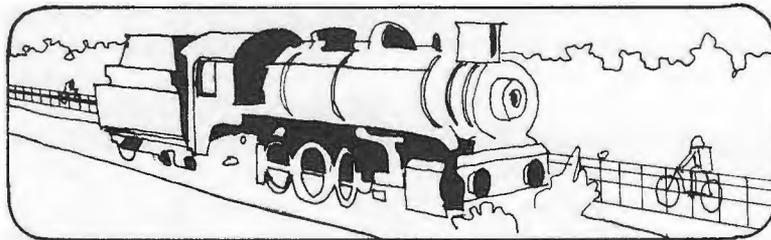
* HOLD PUBLIC EVENTS —



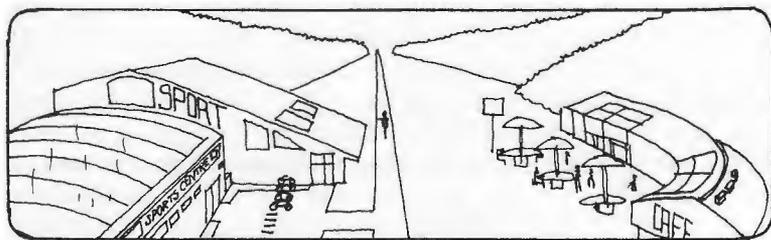
* ORGANISE GUIDED TRIPS —



* HAVE ATTRACTIONS ALONG THE ROUTE —



* HAVE SPECIAL FEATURES —



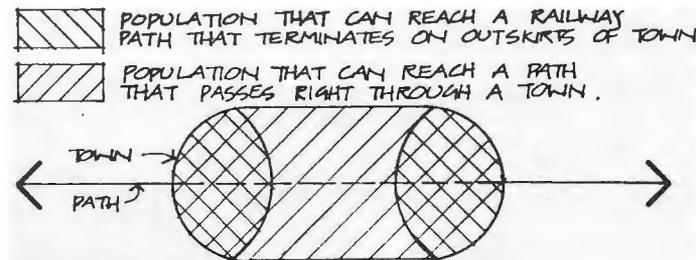
* USE ADJACENT LAND —

POSITIVE ACTIONS TO GENERATE MAXIMUM USE OF RAILWAY CYCLE PATH

Fig 6.1

6.4.1 Continuity

A single break caused by a missing bridge over a major road will be a considerable deterrent to the use of the whole of that route, particularly to those groups most at risk on the highway – children, families, the elderly and inexperienced cyclists of all ages. If there are too many breaks, then the route will not have any linear transport function at all, as seems to be the case in the Greenways at Stoke-on-Trent, Annex A7. The continuity of a route through an urban area is also important as the potential use of a route goes up by a factor related more nearly to the square of the total length than linearly. This is because the whole of the population accessible to each individual section of the route is also accessible to the whole of that length, and, in particular, if a route only starts on the edge of the urban area, then only a small proportion of the population can reach that path.



6.4.2 Links

The line of the disused railway is fixed. It will often be some way from a potential user. For instance, the Guildford to Shoreham line, in fact, starts at Bromley Junction some 4kms from the large urban area of Guildford and it stops some 5kms from the densely populated south coast. Clearly, unless a link is created as an integral part of the project, the potentially safe route is separated from its patrons by a tract of busy roads.

6.4.3. Access

Access points should be made wherever there might be a potential cluster of users. In particular, it should be made direct into every housing, school, shopping and working zone along the line so that as many people as possible can use the line without having to cross a major highway. Schools need special attention as they are often set back from the line on the other side of a playfield. The access to such schools should stretch right around the ground to reach the school entrance with a hard all weather path that can be easily used all through the year.

6.4.4

In addition to these points relating to the route and its feeders, the negotiators will need to satisfy the public living alongside the line that there will not be any appreciable problems of vandalism, rubbish and other abuse; that multiple use is satisfactory; that agricultural land will not be trespassed on or spread with litter; that the nature reserve of the disused railway can coexist with bike path functions; that complementary and other developments can also take place on the land; and so on. Throughout, the only component which should not be sacrificed is the continuity of a segregated or protected route.

6.5 Promotion of the Completed Project

6.5.1

Earlier in this Report, it has been suggested that railway paths should be developed as 'strategic routes', and that efforts should be made to increase their use. The reasons for this are as follows:

- (a) Railway paths are much more expensive to construct and maintain than comparable field paths. Even in urban areas, their structures and bridges, which would not be found on nearby paths, incur maintenance costs which can only continue to be justified by relatively high levels of popular use.
- (b) High levels of use will check random abuse.
- (c) It will also justify extensions to the route by the building of further sections of a wider network of routes.



Coalport Station, The Severn Valley Railway

6.5.2 Methods of Encouraging Popular Public Use

The range of short and long term action includes the following:

(a) *The bike path should be attractive.* In the first instance, this means that the surface must be smooth, hard and dry; that the access points are convenient and easy to use; that proper links are established to schools, leisure centres, parks and other high traffic generators; and that it is well signposted advertised and mapped.

(b) *Events.* The path should be well advertised. It is not sufficient simply to build the path and print some attractive leaflets. The public have to be persuaded to modify their travelling/recreation habits to include the use of the railway path. Events, with attendant media coverage, are very important and include – a grand opening and party presided over by some public figure or well known personality; sponsored walks and rides which can be easily and safely made on the segregated path; and inclusion of the railway bike path in the route of larger events such as the now popular massed ride or long distance walk. For instance, the 1981 Great British Bike Ride from John O’Groats to Land’s End successfully incorporated two of Cyclebag’s recent projects in its route – Ashton to Pill and Bitten to Bath.

(c) *Guided Trips.* It is very valuable if local clubs, groups and schools can all be persuaded to include regular trips on the route in their programme and timetables.

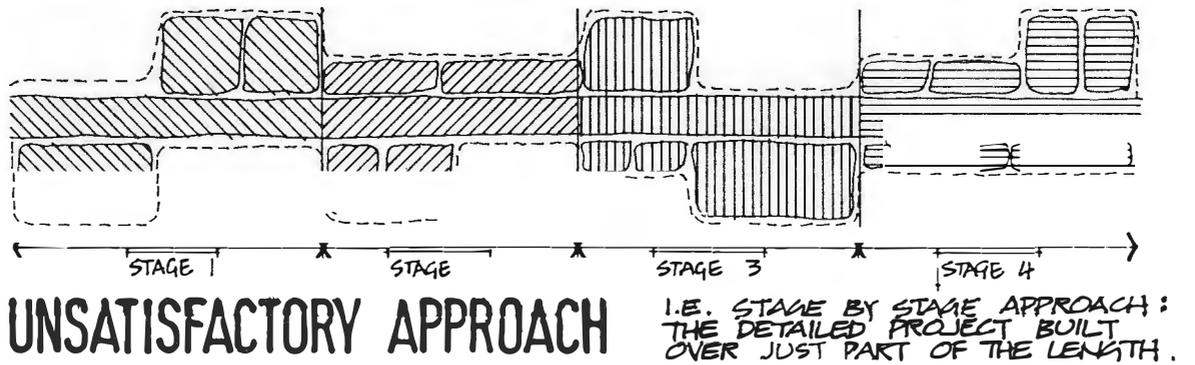
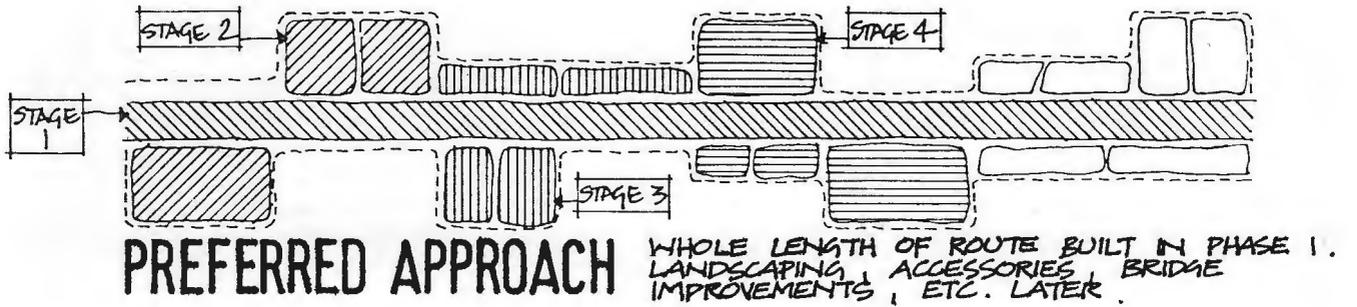
(d) *Development of facilities along the route.* Common facilities include car parking, picnic places, information centres, toilets and bike hire centres. Some of these are more appropriate to rural recreation routes than urban ones, and are common on a number of existing routes, eg Wirral Park, Tissington Trail, Kingswinford Line etc.

(e) *Development of the disused railway itself as a special feature.* It is common to find that the cuttings and embankments comprising the disused railway are left to go wild and regenerate naturally. After hearing the importance of this described so often on almost every scheme, we suspect that something of a virtue is being made of a policy of neglect or economy. There are situations where a tree-lined avenue (Stratford), or a formal linear garden (Eccles) would be more appropriate, particularly in urban areas where space is tight. The Rugby Annex illustrates an example of a formal garden proposal set in 30ha of the Great Central cutting. This approach could be adopted elsewhere to make a specially attractive feature designed, amongst other things, to generate heavy use of a route. On the question of surfacing, we have allowed for surface dressing in all railway paths in urban areas, at least. Other linear uses which can creatively coexist with a railway bike path include a bridleway, private steam and enthusiasts’ railways, and agricultural access roads.

(f) *Development and use of land in the vicinity of the railway route.* Wherever possible, new and existing uses should be encouraged to relate directly to the bike path. Links should reach into housing and shopping areas, and all weather paths be built into the schools. Some new developments should be of a kind that will both generate and attract users to the path. For example, a Leisure Centre would enhance the route far more than the ubiquitous warehousing. It does not matter how much of the railway land is taken up by these developments, provided always that space for an attractive and continuous route is left available. In the course of time, it might be possible to envisage the town turning away from its trafficked roads and facing on to its linear railway park and bike path.

6.5.3

This outline of action to foster the early success of railway bike paths is summarised in Table 6. The key point is that these paths should not be expected to thrive without the support with which their use could exceed their sponsors’ expectations.



**ALTERNATIVE
APPROACHES
TO PHASING**

Fig 7

7. The Construction of Railway Bike Paths

7.1 Scale and Standards

The practical extent of a project relates to the likely level of funding available. For the time being, it is likely to be relatively small. In these circumstances, we suggest that it is better to build as long a route as possible, to a lesser standard, in the first place, rather than a short and expensive piece which, in itself, can generate very little new use. For example, if a single set of traffic lights is provided to aid cyclists travelling across one particularly awkward or dangerous junction, it will, of course, be useful to those cyclists already using a route through or near to that junction, but it is most unlikely to attract new cyclists, since the remainder of their journey will still be on unimproved roads.

Bike paths on disused railways are one good example of a project that can realise a long route, useful to a reasonably large population, for a modest sum, provided they are built in two phases. The first phase concentrates on setting down a dry all weather path with good access points and safe links, and a minimum running repair to fences and bridges. The second phase, which can be carried out when the path is proved to be popular and useful, then puts in hand long term repair, maintenance and re-building.

In general terms, the first phase is probably an appropriate area of work for MSC Youth Opportunity Schemes, whilst the second is possibly more appropriate for the Local Authority's crews and contractors.

For the remainder of this Report, this Study will concentrate on the first phase only of railway route projects, and will discuss the ways of ensuring that MSC teams can be managed and trained to undertake the work.

7.2 General Nature of the Construction Work

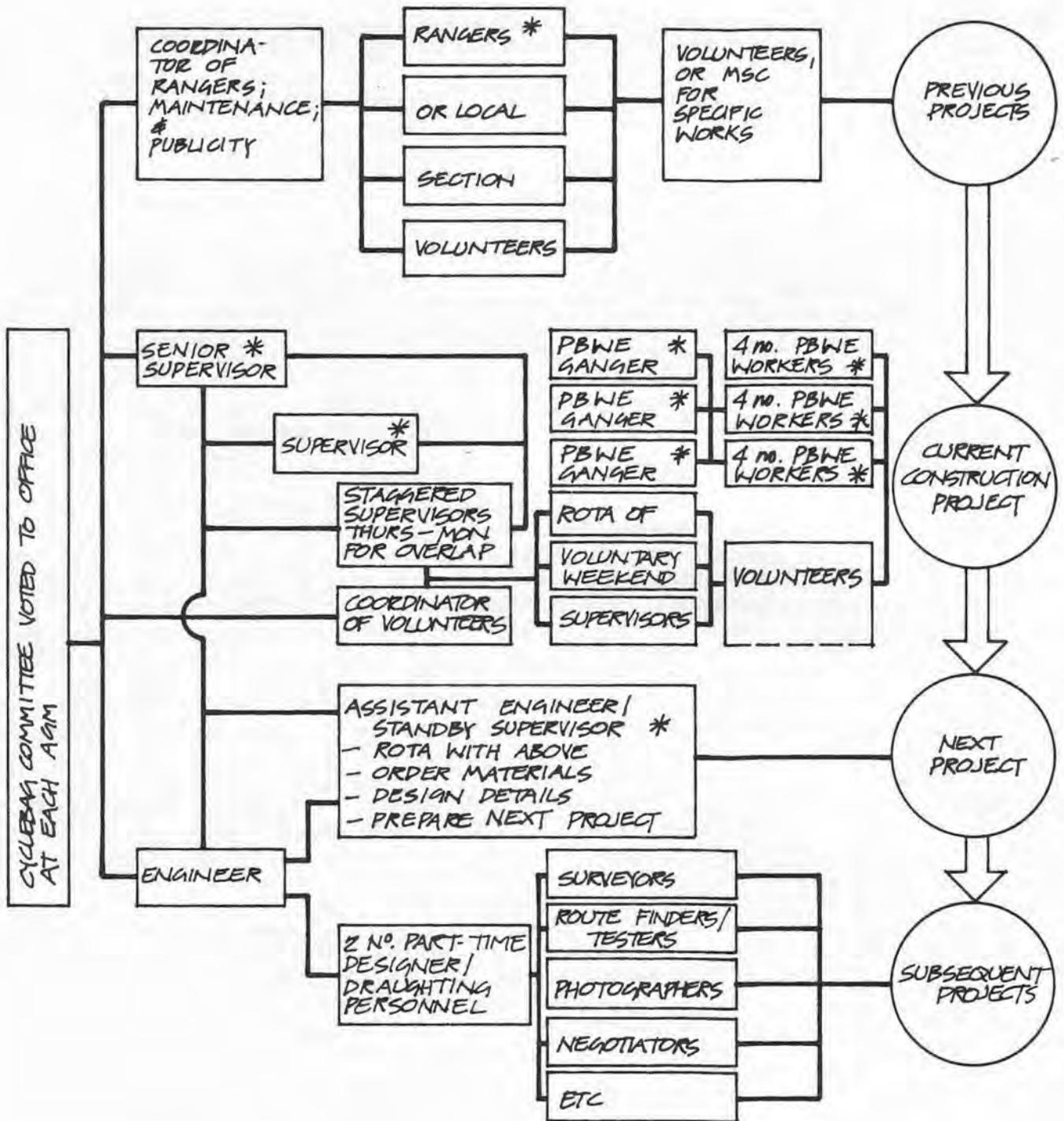
The construction of cycle paths on disused railways form a very small addition to the considerable existing railway works – bridges, tunnel, embankments and cuttings. The work is essentially relatively simple and can be built largely by hand with appropriate tools and equipment. It is often important to work with a light touch so as to cause little disturbance to an often mature habitat.

However, the simplicity of the task should *not* be interpreted as an excuse for a poor quality of design, of management and of work. It is rare to find an existing path that is continuous with a smooth, well drained surface, with adequate and well graded links and access points, and with sound fencing and drainage.

In many respects, proper path construction requires elements of all the skills employed on building much grander roads and motorways, albeit on a more limited scale.

The planning of the work must decide a programme that ensures a smooth supply of materials. Access for construction vehicles is often very difficult, with access points few and far between necessitating the running of stone lorries over the formation to be used for the path. In wet weather this may be impossible. On embankments, there may be no turning points for miles.

The actual work must be finished to a high standard. It is crucial that the surface of unsealed paths *drain properly*. Most railway paths built to date, don't. Any puddle softens the sub-grade and quickly results in a quagmire. The longitudinal profile that determines the smoothness of ride is important. The proper choice of hand tools or of whether a particular job is to be done by hand or machine are also crucial questions that are not often considered these days in the United Kingdom. Whilst handwork can get through most tasks, there are some which can be dauntingly and demoralisingly hard to complete, eg rock removal. Other tasks, such as tree and stump removal, can be done readily by hand, provided the correct tools and proper know-how is applied – in this case, a winch. Unfortunately, in a number of schemes, the supervisors have not had the experience or skill to supervise the work properly and, as a result, it has suffered accordingly.



* EMPLOYED UNDER MSC SCHEME

SCHMATIC SHOWING
RELATIONSHIP OF
CYCLEBAG ROUTE
CONSTRUCTION &
MAINTENANCE
PERSONNEL

Fig 7.1

7.3 MSC Job Creation Type Scheme

Our comments are based upon direct experience of building two paths; the Bitton to Bath Railway Path and the Ashton to Pill Path in Bristol.

First phase railway route construction can be a particularly suitable project for an MSC Job Creation Scheme as it involves a fairly wide range of basic skills and ends up with a visible product that is of use to the community.

7.3.1 Supervisors

It is often said that the success, or otherwise, of MSC projects depends crucially upon the quality of the supervisors on site. This is clearly so since the team is essentially unskilled and must be taught how to do everything – muckshifting, winching, spreading, driving dumpers, raking absolutely level etc. and to keep good time, cope with all weathers and the other members of the team. This means that the supervisors must, between them, have adequate technical skills and management ability. Many projects can fall down because the supervisors do not possess the necessary skills and experience. It can be a recipe for much trouble.

We suggest that good supervisors should be encouraged to stay in the MSC programme and that each new project should have at least one experienced supervisor from a previous railway project. This implies that railway route projects should be co-ordinated nationally into a programme that allows the key personnel and plant to progress from job to job.

7.3.2 Management

The management is responsible for ensuring that the site staff have everything that they need, when they need it, without causing unnecessary delay or irritation to the works on site who will often be remote from telephones and stores. This can only be achieved if the project runs to a programme, which is reviewed from time to time, and particularly when the regular progress meetings are held between the office management and the supervisors on site. It is important that everybody has confidence in each other. It is inevitable that problems will arise that will require speedy resolution within the always slender budgets of the project – plant and equipment will fail, the weather will be too dry or too wet, adjacent landowners may cause endless frustrations over access and the public may abuse the partly finished project by motor-biking or horse-riding around half completed gates.

The arrangement used in Bristol is shown in Fig 7.1. Whilst the Project Engineer's work may well be only a part-time task, it must always be done and on time. If the site need stone at noon, they should get stone at noon. There is very little slack for error in our estimates.

This type of service is only possible in a Local Authority that has enough projects on the go to justify full-time staff, for otherwise, the officer who initiated the project inevitably gets tied up elsewhere at crucial times; or in an office that is set up to concentrate on route building, such as Cyclebag in Bristol. Maybe this suggests that a nationwide railway route building programme will need the support of a full-time route construction management team.

7.3.3 Specialist tasks of contractors

Certain work is best done by the L A or contractors – plant maintenance, steelwork and welding, bridgeworks, traffic lights and junctions with the highway. These specific items should always be put out to open tender and care should be taken in selecting a contractor who understands the nature of the project as a whole. A dozer in the wrong hands can do a great deal of damage that may take a disproportionate amount of hard labour to put right.

7.3.4 Constructing routes by labour intensive means

Some guidance for the management and organisation of the large scale construction of bike paths can be gained from minor road projects in some 3rd World Countries. For instance the Kenyan Government is building 14,000kms of minor roads by hand under the Rural Access Roads Programme. This is programmed to last 10 years and give employment to 7,000 workers.²¹

8. Estimates of Cost of First Phase of Construction

8.1 General Points

The major cost of a scheme can be expenditure on bridges and fencing. This is usually not because these two items actually need a lot of work done to them just at the start of the project (after all, they may have been untouched by maintenance for 10-20 years), but because the Local Authority Engineer prudently wishes to ensure that they are overhauled to such a standard that they will require very little maintenance for the foreseeable future.

Therefore, we suggest that the railway routes are built in two *capital* stages, and that the funding mechanisms are modified to allow this.

The first stage is designed to establish the *whole* of the route at the lowest practical cost. It would be an experimental stage. Its purpose is to establish whether the route would be popular and whether the facility would be cost effective. At this stage, the links, the access points and a reasonable surface only are built, together with essential minimum maintenance to bridges, drains and fences.

The second phase, which consists of bringing the whole work up to a reasonable long term standard with minimum maintenance costs acceptable to the Engineer, is carried out as a subsequent second phase capital project.

The estimates given in Annex C are drawn up for the first proving phase of a two stage project where the majority of the bridge and fence long term costs are incurred in the second phase. The tables are arranged so as to show the materials, plant and engineering costs separate from the estimate of time put in by MSC Job Creation Teams. These figures should be in a form useful for deriving the cost of a project funded by other means.

8.2 Summary of Estimate of Cost taken forward to Each Annex

This summary is taken from the detailed estimates of costs given in Annex C. The estimates should be read as the costs that would be incurred if the project was carried out by an MSC Job Creation Team.

	Materials & Plant/km 2.0m path	Materials & Plant/km 2.5m path	MSC Man- power man/weeks per km 2.0m 2.5m	
1.1	Promotional Costs of reaching full agreement to proceed with the project. This varies widely and depends whether or not the local authorities choose to charge any establishment costs, and whether or not land acquisition costs are incurred. Sum	500	N/A	
2.1	Preliminaries – hand tools, protective clothing, stores, mess hut, first aid etc. as required: allow 10% of main items below & for covering this item is included in item 3 below.			
3.1	Construction of path on clean railway ballast, blinding smooth with limestone dust or equivalent and rolling wet	1300	1600	30 35
3.2	Construction of path on overgrown railway ballast, cleaning off, blinding smooth and rolling wet	1500	1700	40 45
3.3	Construction of path on remains of ballast, laying stone, blinding smooth and rolling wet	2000	2300	50 55
3.4	Construction of path in new location and on poor soils, cleaning, levelling, laying filter fabric, side boards are required, 100 mm of stone, blinding smooth & rolling wet	3300	3800	80 90

3.5	Construction of bridlepath parallel to railway path, generally on original ground contours in railway margins, allow sum	1000	30
3.6	Construction of 1000mm wide tarmac path across agricultural land; excavation, engineering fabric, 100mm stone base, 60mm bitmac single course	4000	40
3.7	Construction of 300mm wide tarmac path as above (3.6)	1500	20
4.1	Surface dressing using K170 Bituminous Emulsion at 2 litres per square metre, and 6mm clean limestone chippings £0.60/m ²	1500	N/A
4.2	Provide and lay 60mm consolidated thickness 40mm nominal sized bituminous macadam limestone single base to BS 4987/73, Clause 2.2.3 laid by hand and well rolled, and seal upon completion with 3mm bituminous sealing grit £2.40/m ²	6000	N/A
5.1	Fencing – allow for the equivalent of completely new fencing for 20% of the whole fence length in agricultural areas and 10% in all other areas	£ 560/km of route £ 280/km of route	4
5.2	Central post and two rail fence to separate bridleway where necessary	£2300	0
5.3	Mild steel balustrade, 100mm dia. top rail on 75mm dia. posts & 3m centres with 3 No. high tensile 10g wires below	£1000/100m	5
6.1	Drainage – clearance, repair of manhole covers and digging from ditches – allow sum	£ 100/km	5
7.1	Bridges – masonry/brick – allow sum for immediate repairs, repointing etc. – average sum per arch	£ 100	5
7.2	Bridges – iron & steel – allow average sum for immediate shotblasting and painting as necessary per span	£ 400	10
7.3	New Bridges (Example only) – Allow sum for new 2m wide foot and cycle bridges erected on existing sound abutments	£5000/10m span	N/A
	(Note: in certain cases it may be possible to resite existing defunct bridges, or to make one up from available new or secondhand materials – leading to considerable savings depending upon the circumstances)		
8.1	At-grade crossings – pedestrian button & cycle actuated light controlled crossings, including all civil works, by specialist contractors –		
	Single carriageway	£10000	N/A
	Double carriageway	£12500	
9.1	Access Points – allow average sum per	£ 300	5
9.1	Access Points – access point		
9.1	Access Points – allow reduction if most are	£ 200	4
9.1	Access Points – at-grade		
9.2	Accommodation Crossings – allow for 2 No. field gates, 2 No. latched hunters gates & asphalt surface 10m long and × 3m wide	£ 400	4
10.1	Specials – specify as required		
11.1	Subtotal of items Nos. 1 – 10 above		
11.2	Contingencies – allow plus 10% to subtotal (11.1) to cover omissions and unforeseen problems		
11.3	Engineering allow plus 10% to subtotal (11.1) to cover ongoing negotiations, technical supervision and managements		

- 11.4 Inflation – The figures in items 1 – 10 above are correct as of 1st September 1981. The actual estimated cost of the project should be increased by a factor determined from the change in the Baxter Indices for Aggregates & Plant (these taken to be of equal weight) from this date to the estimated mid-point of the projects construction period.
- 11.5 Establishment Costs – These will vary widely depending upon who is responsible for carrying out the project. Available figures range from plus 0% to plus 200% on to subtotal (11.1).
- 12.1 Total Cost = (11.1) × 1.2 × (Inflation Factor) × (Establishment Costs).
- Throughout this report the figures given will be September 1st 1981 figures × 1.2 alone with no establishment costs.

8.3 Sources of Funds

Funds to convert disused railways have come from many different sources including the following:

8.3.1. Transport Funds

The bulk of transport finance comes from rates and the Rate Support Grant (RSG) like most Local Government current expenditure. The Transport Supplementary Grant (TSG) is an additional block grant paid to counties in England and Wales and as a supplement to RSG. The final level of grant is the Minister's decision and is based upon the individual authority's Transport Policies and Programme (TPP) which should identify the most important factors influencing the transport needs of the area; the problems arising from them and the Authority's objectives and proposals.

Cycle provision has usually featured low in the TPP if at all. Just how low may be judged from the fact that we don't know of one single railway path in the country that has been funded from transport funds. However there is considerable latitude on how each individual Council actually spends its funds and circumstances now suggest that in certain instances the development of segregated facilities for pedestrians and cyclists would be more beneficial than the equivalently priced road improvement.

Most of the railway routes covered in the detailed annexes to this study could be built for less than 2% of the relevant county's annual Accepted Expenditure on Transport.

8.3.2 Reclamation and Derelict Land Grant

Under the Derelict Land Reclamation Scheme administered by the Department of the Environment, grants are available to Local Authorities in England for the acquisition and reclamation of derelict land. It provides for 100% grants in Assisted Areas (AAs) and Derelict Land Clearance Areas (DCLAs); for 75% grants in National Parks and Areas of Outstanding Natural Beauty (AONB); and for 50% grants to Local Authorities in other areas.

Derelict Land is defined (administratively) as land so damaged by industrial or other development that it is incapable of beneficial use without treatment. In addition the grant covers some land that is not derelict but is required for purposes connected with reclamation work on derelict land.

Grants of 50% of the net costs of reclamation (but not land acquisition) are also available to persons and public bodies other than Local Authorities under Section 9 of the Local Government Act 1966 (as amended).

The costs eligible for grant are those of works required to reclaim the site to the equivalent of a 'greenfield site' plus the costs of a site survey and related consultants fees and legal expenses.

This grant applies equally to sites in urban or rural areas.

8.3.3 Manpower Services Commission (MSC) Funds

The MSC have funded YOP teams on a number of railway paths in the past. At present they are keen to develop a programme of railway route construction and it is to be hoped that a fund of experience can be built up to make these effective training and work experience projects as well as provide a high standard of path for public use.

8.3.4 Funds from other sources

A lot of railway projects have been promoted by recreation and leisure committees with their funds. In fact allocations have probably been made from most departments of the Council, particularly towards the end of the financial year when these relatively low priced railway paths can absorb surplus cash.

Some inner city areas have programmes that can include railway routes.

We know of very few private bodies that have sponsored route construction. It may be that it is rather difficult to identify with a route and so its promotional value is small. In West Germany Life Insurance Companies promote projects of this kind on the grounds that cycling is healthy and increasing its popularity as safe routes extend their clients' lifespan!

The Central Government has not directly funded any railway paths, although some aspects might qualify for assistance from their experimental cycling schemes budget.

The Countryside Commission regularly make grants for railway paths, and will normally grant aid up to 50% of the cost construction of paths outside urban areas and in the case of 'long distance paths' up to 100%. The Commission also provide grant aid towards the cost of more general environmental improvements and landscaping, for car parks, information/interpretation facilities, picnic sites, and the waymarking of associated public rights of way.



Newhaven Tunnel, The Cromford & High Peak Railway

9. Legal Status of Railway Bike Paths

9.1 Statutory Powers

Disused railway lines can be converted into bridleways (over which the public have the right to ride a bicycle by virtue of sections 30 of the Countryside Act 1968) by using the powers contained in sections 25 to 28 of the Highways Act 1980. Alternatively, they can be converted into cycle tracks, with or without a right of way on foot, under Section 24 of the 1980 Act. Throughout this report the term bike path is used to mean a path for the joint use of pedestrians and cyclists. Where a bridlepath has been created on a disused railway equestrian traffic might be regulated by using the powers now available under section 60 of the Wildlife and Countryside Act 1981.

9.2 Interim Action

In the first instance, it is probably best for the owners of the disused railway to allow only a permissive use of the way for the desired class of user – pedestrian, equestrian and/or cyclist. This allows temporary clearance for repairs. It also enables the route to be modified, if necessary. For example, it is not important that the bike path always remains on the original formation, only that it is continuous, segregated and rideable. Deviations may be desirable in order to accommodate other compatible developments. In this way, Waverley District Council has been able to keep much better control of the Surrey section of the Guildford to Shoreham Line, than have West Sussex who declared it a bridleway.

9.3 Third Party Insurance

On a permissive right of way some consideration should be given to the question of third party liability as there may be no protection under Section 50 of the Highway Act 1980. Premiums for this type of cover are not expensive. About 40kms of railway and river path in Avon set up as a permissive right of way for cyclists is covered at a cost of £100.00 per annum.

“Example of railway bridle path in poor condition – Christ’s Hospital to Bramber, W.Sussex”



Table 10.1 Guide to the maintenance costs of a typical railway path

Item	£/km of track
1. Materials, plant, accessories and engineering supervision for a MSC type job creation maintenance program for the path surface – take 5% of construction costs	50.00
2. Similar for fences, allowing 20 year life for full replacement, but noting that less than the whole of the length needs to be fenced against stock	100.00
3. Similar for structures, allowing for £100 material costs per bridge (25% of B.Rs average of £400/operational bridge/year) and 2 structures per km	200.00
Total material/plant and supervision costs/km	£350.00

Table 10.2 Guide to cost of ranger and warden service, working mostly with the public and handling minor repairs and maintenance

Item	£/km of track
1. Full time ranger/warden @ £6000/yr, each covering 20kms	300.00
2. Subsistence and expenses £600/20kms	30.00
3. Volunteer expenses	50.00
Total ranger and warden costs/km	£380.00

Table 10.3 Extracts from the 81/82 Returns of the Reclamation & Countryside Service of County Durham

Item	81/82 Estimate
1. 2 No. full-time Countryside Wardens	
Salary	14,047
Subsistence	750
2. 4 No. fulltime and volunteer wardens	
Salary	24,464
Subsistence	1,400
3. 26 No. part-time and volunteer wardens	8,490
4. Wardens' transport and running costs (4 vans)	12,590
5. General maintenance of picnic areas	20,000
	£81,741
Total length 120kms	
Annual personnel expenses about £700/km	
Note: This budget does not anticipate any real expenditure upon materials for works as the railway routes have all recently been reclaimed and rebuilt at considerable capital cost.	

10. Maintenance

10.1 Levels of Use

The first secret of maintenance is to build the path well in the first place – proper drainage, proper surface and proper controls on entry by horses or others who might damage the path. The second secret is to achieve rapidly a high level of popular use. This user public exerts a passive surveillance that reduces the opportunity for vandalism and abuse. It is important to create conditions which encourage the public to identify with the path sufficiently to want it to flourish and be kept in good condition. For this reason, it is a help if the public, individuals and groups can be closely identified with the project from its conception.

10.2 Immediate Care and Repair

Most problems, or faults, are very small when they start – a damaged fence or a clogged drain. It is important that the problem is fixed immediately before it has time to create serious damage (eg a herd of cows on the line, or a washout). The railway bike path should be checked daily, if possible, through the services of regular users (eg commuters) who report any faults the same day to *some normally available* and well known person or organisation, who can then arrange for volunteer fixers, part-timers or the ranger to attend to the matter immediately. It is very important that the work is done so that the caller has the *confidence* that the work of checking is not in vain. In fact, a lot of aspects of the successful promotion of railway routes has to do with confidence: building it, using it, maintaining it and extending it.

10.3 A Ranger

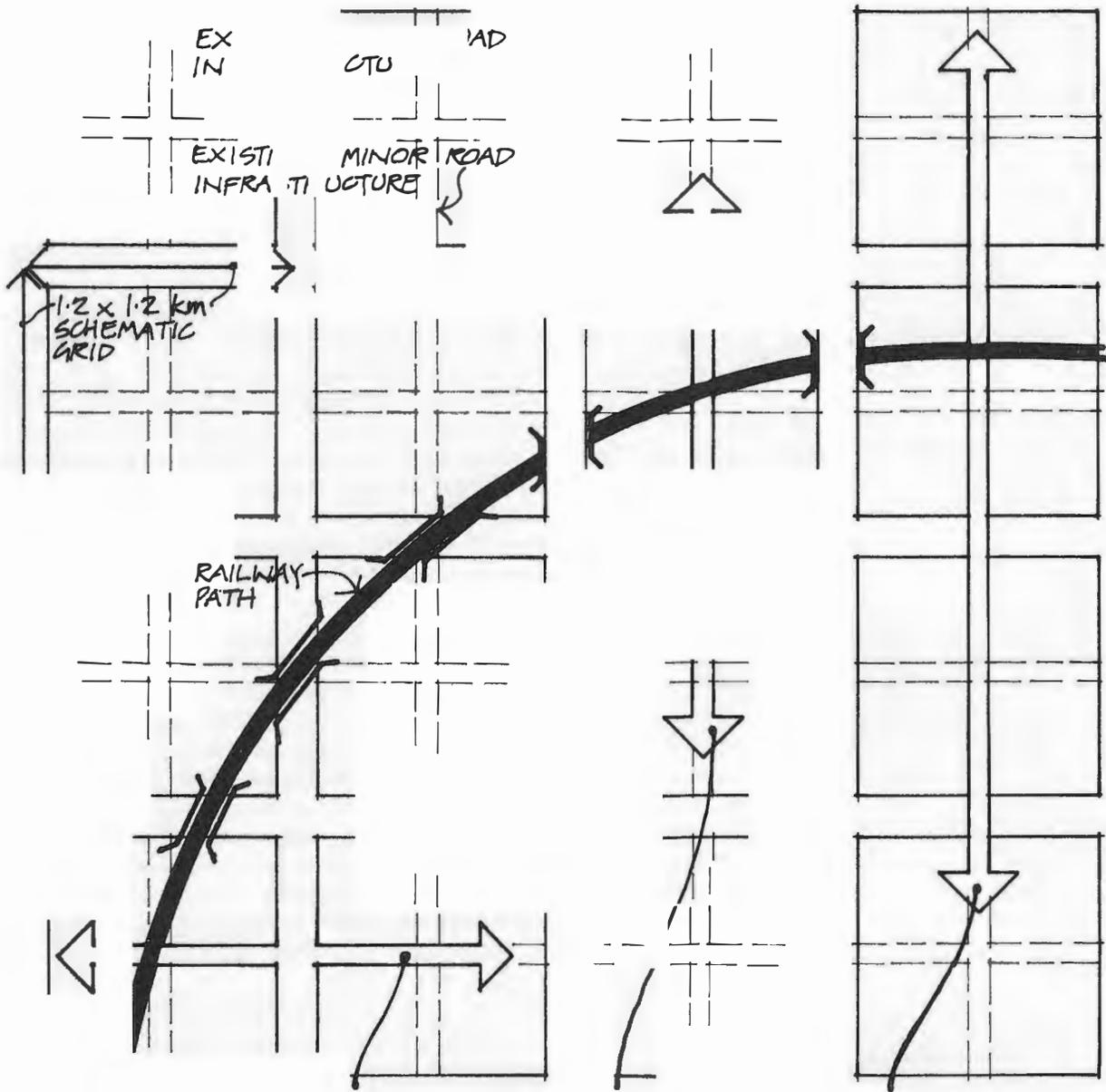
It is desirable to have a full time ranger. One person can handle 20kms or more, especially with the help of volunteers or others for specific tasks. Much of the ranger's job is public relations. It is absolutely no good if the ranger travels up and down the bike path in a vehicle. The very presence of a tyre mark on the surface is a mistake as it frets the public who believe the path to be vehicle free. The vehicle sets up a barrier between the public and the ranger, when much of his time should be spent in talking with individuals, encouraging them to participate in the project, learning of their views and so forth. Most basic repair tools can be carried on a small cycle trailer – spade, slasher, fencing tools, hammer, nails etc. Only the occasional supply of materials will come by truck or van. The ranger should be able to co-ordinate volunteers and groups into effective maintenance programmes. On the whole, it is better to have no ranger than a motorised one.

Quite clearly, the actual annual maintenance cost depends upon the scale and method of carrying out the work. Table 10.1 shows the cost of carrying out the main maintenance works to the path surface, fences and structures by a *MSC job creation team* working on the same basis as for the construction of the initial path.

Table 10.2 shows the cost of a typical ranger and voluntary warden service. Most of this work will relate to the public, to areas of high use such as picnic sites and to minor ongoing repairs.

Table 10.3 shows the budgeted cost of the ranger service for 1981/82 in County Durham where they cover about 120kms of railway route and a considerable amount of reclaimed are besides.

Table 10.1 and 10.2 combined suggest that the cost of maintaining a well built railway path should be about £700/800/km/year provided that MSC type schemes continue to be available.



LINKING ROUTES COULD DEVELOP OFF THE MAIN RAILWAY PATH TO CREATE A NETWORK SERVING EVER LARGER AREAS OF THE POPULATION.

DIAGRAM SHOWING DEVELOPMENT OF ROUTES LINKING WITH A RAILWAY PATH

11. The Potential role of Bike Paths on Disused Railways within a General Policy or Strategy to Encourage Cycling and to make it Safer

Disused railways are where they are, and are not usually conveniently located along lines of proven and existing bike routes. Their special attractions are not those of place, but of absolute segregation from road traffic and of even, easy gradients. Bike paths built on disused railways can have the following roles:

11.1 They are safe for children

Children learn to ride bicycles at the age of 5 or 6, but until the age of 10 or 11, they do not have sufficient maturity (road sense ability?) to be able to cope safely with trafficked roads. This is a long period of frustration. Children of this age conflict with pedestrians on pavements and bye-laws in parks. Access to a segregated route, such as a railway bike path, is a real benefit and relief to the parents concerned. By the age of 10, a child can quite comfortably cycle 30-50kms and more, whilst even 5 or 6 year olds can manage 10kms in an afternoon.

11.2 A training ground for novices

Numerous surveys have shown that there are two principle reasons for not cycling, namely a pre-conceived fear of traffic conflict, and an actual laziness or unwillingness to make what is seen as an unusually large exertion. So novices and adults who want to take up cycling again after many years need a place where they can gain confidence in their abilities and realise that cycling can be pleasurable, fun and relatively easy. Railway bike paths could be particularly good places for training tomorrow's cyclists.

11.3 Recreation routes in their own right

We have selected fairly long routes to describe in the Annexes to this Report as almost *any* railway bike path of five or more kilometres is sufficiently long to become an attraction in its own right. The public will use it, if necessary, drive to it, for an afternoon out on bikes. Recreational cycling of this sort could do a lot to bring this form of travelling more to the public's eye. Research has shown that peoples' popular attitude to cycling has as much to do with its level of use as anything else.

11.4 Railway bike paths are demonstration projects well suited to determining whether or not properly designed cycle facilities will encourage more use

Small scale local improvements do not inevitably attract more people on to their bikes, because the remainder of the individual journey will still be on unimproved roads, and so they dishearten their sponsors and allow critics to resist further schemes.

This is not the case with a fairly long railway route as generally it gives access to a fairly large population, and it is an attraction in its own right. Because nearly all the civil works have been already done (when the railway was built), a considerable facility can be provided for a nominal cost.

11.5 Railway paths can be treated as a core or spine to a wider network of segregated routes

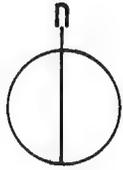
Usually, railway routes cross river valleys, canal towpaths, bridlepaths, or minor roads, all of which can be improved or developed as extensions and links to a larger network. Most networks have to start around some nucleus or focus which, once determined, then puts a new critical perspective on all the roads in the area, and reduces a range of previous options to certain clearly favoured specific routes. For example, the Bitton – Bath Path in Avon (8kms long) is now being extended up a canal towpath to Trowbridge and along certain other disused railway lines to form a nearly continuous route 65kms long.

11.6 Summary

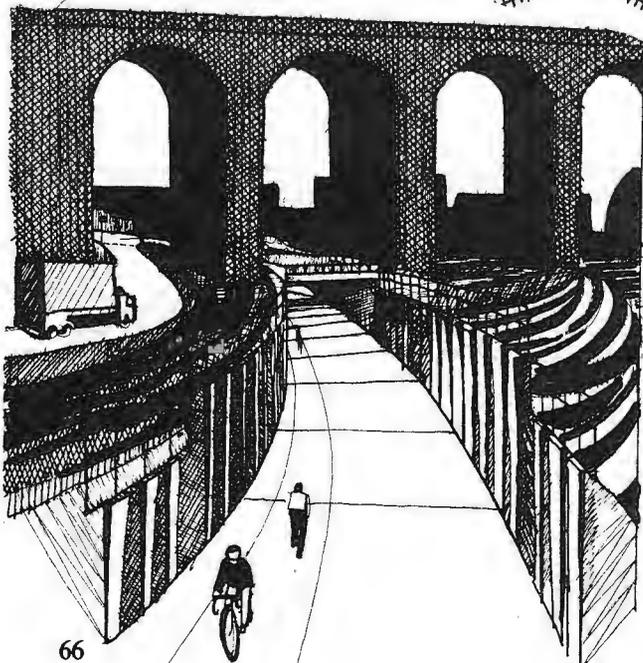
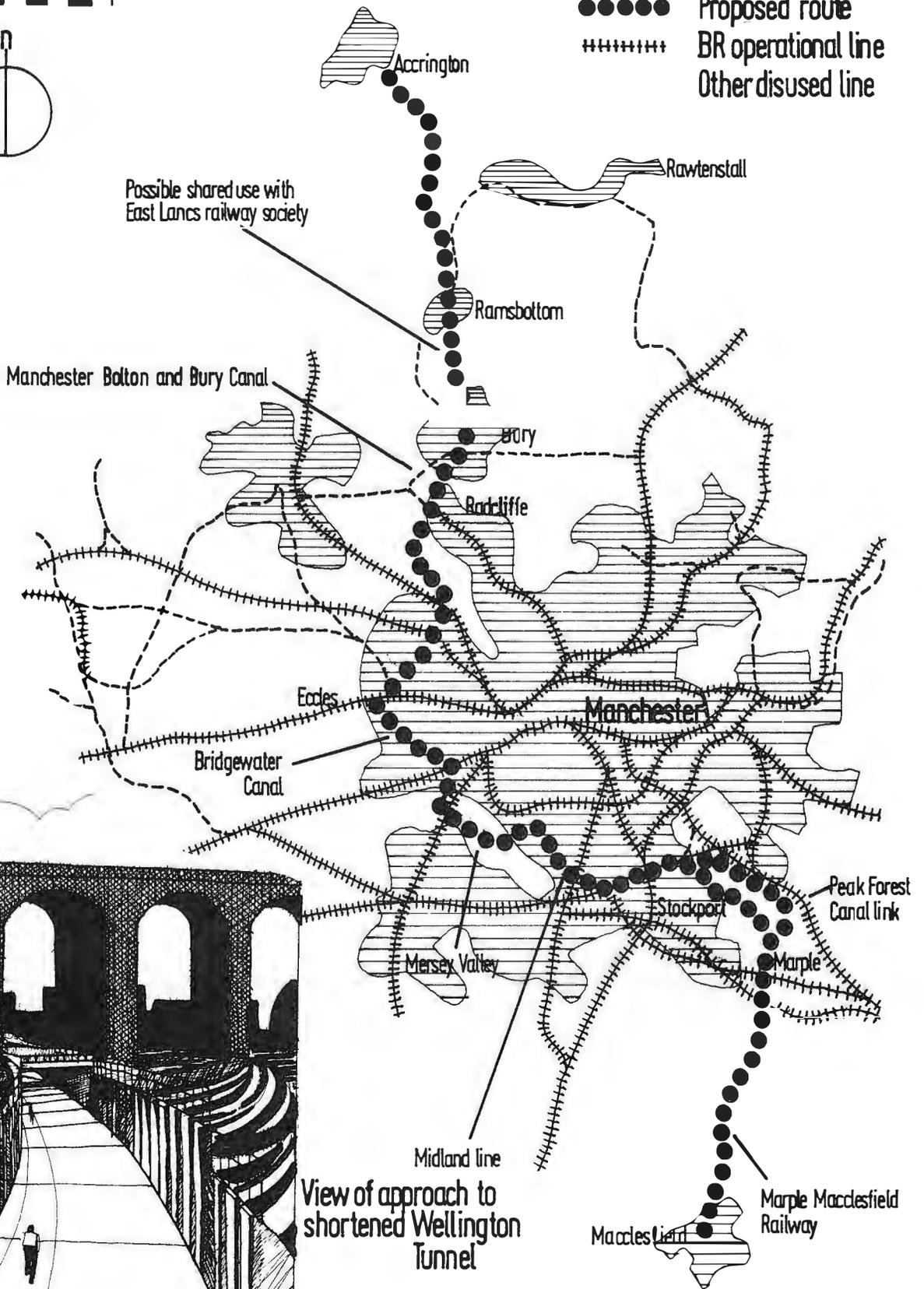
Railway bike paths could have an important strategic role in developing the popularity of cycling, making it safer and forming the basis for an extended network of segregated and priority routes. This Study has prepared detailed notes on nearly 1000kms of railway path that could readily be constructed in a practical programme over the next 3/4 years.

ANNEX A1 EXAMPLE OF ROUTE THROUGH AN AREA WITH COMPLEX REMAINS: MANCHESTER AREA – LOCATION PLAN AND SAMPLE PAGE FROM SEPARATE ANNEX

Manchester lines

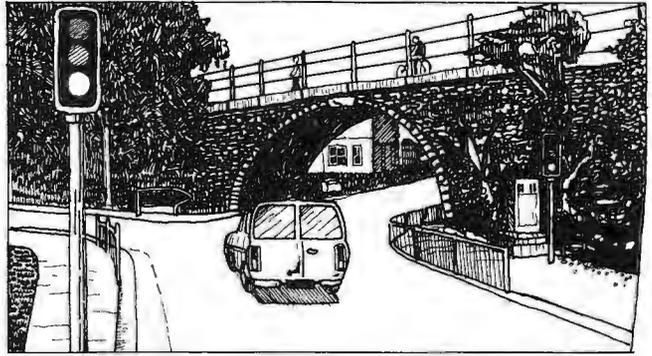


- Proposed route
- ##### BR operational line
- - - - - Other disused line

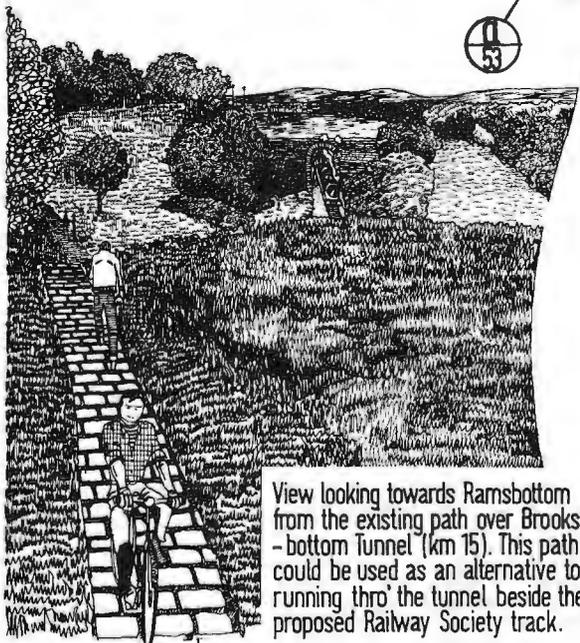
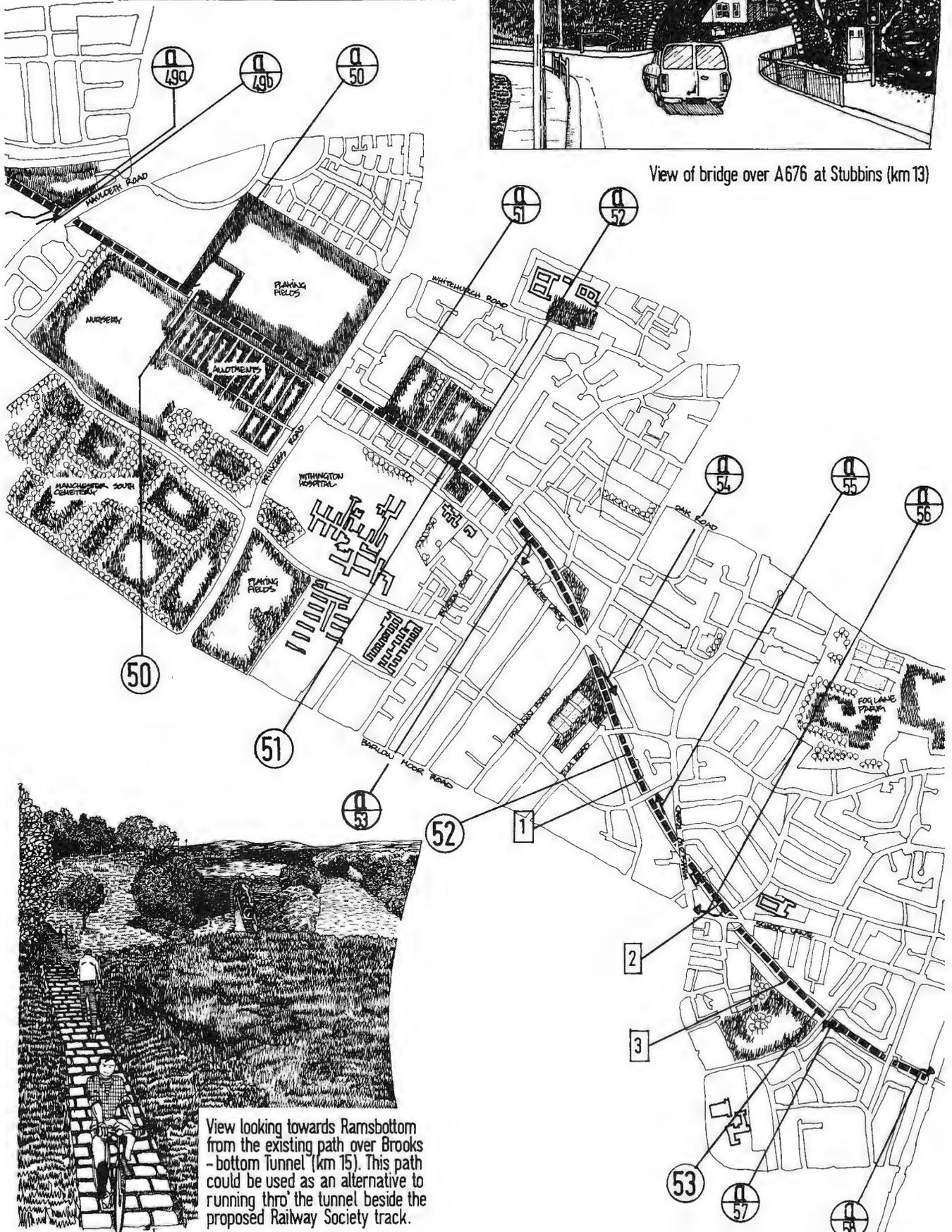


View of approach to shortened Wellington Tunnel

Accrington-Macclesfield Main Line M12



View of bridge over A676 at Stubbins (km 13)



View looking towards Ramsbottom from the existing path over Brooks-bottom Tunnel (km 15). This path could be used as an alternative to running thro' the tunnel beside the proposed Railway Society track.

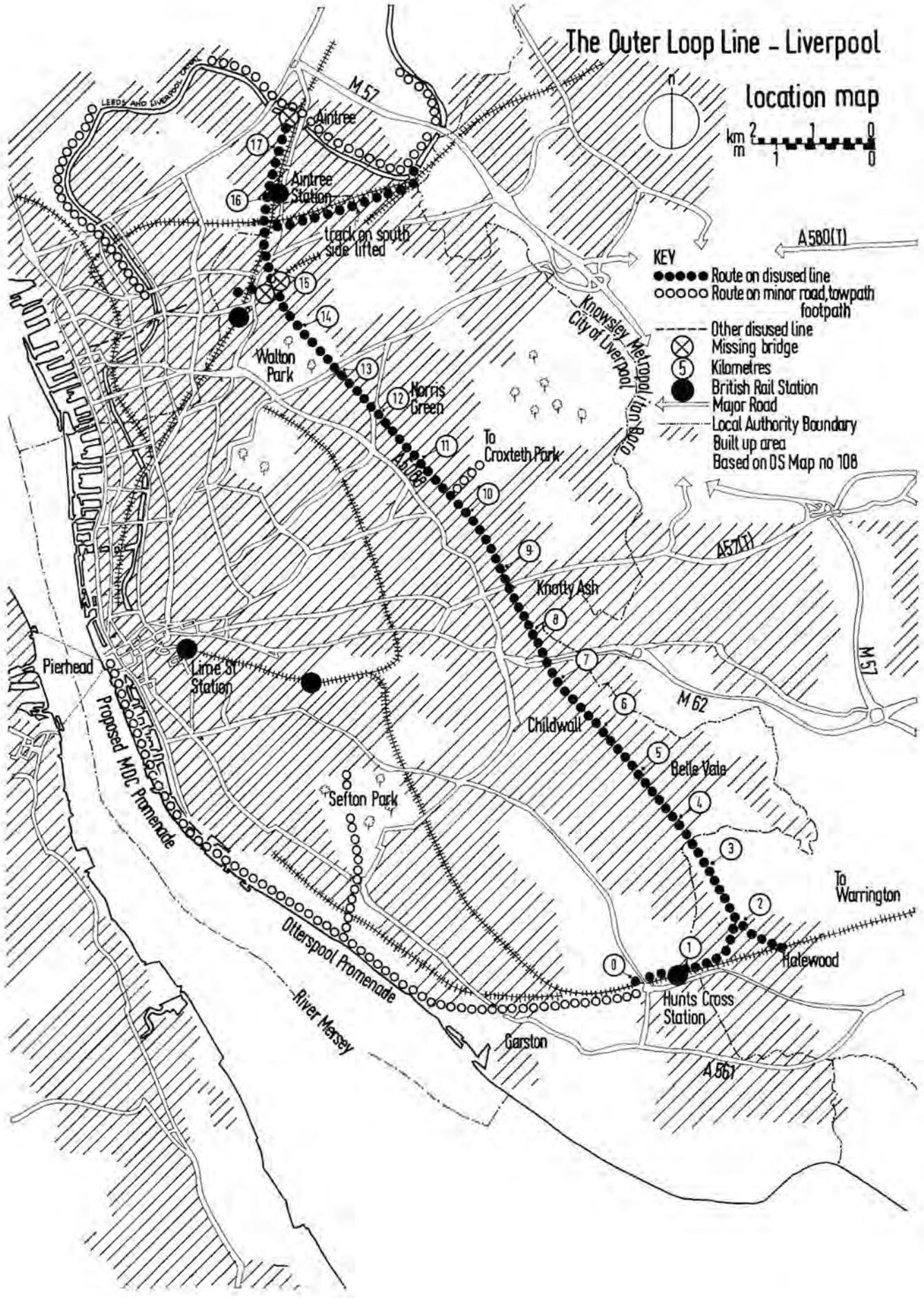
The Outer Loop Line - Liverpool

Location map



KEY

- Route on disused line
- Route on minor road, towpath, footpath
- Other disused line
- ⊗ Missing bridge
- 5 Kilometres
- British Rail Station
- ← Major Road
- Local Authority Boundary
- ▨ Built up area
- Based on OS Map no 108



ANNEX A2 EXTRACT FROM LIVERPOOL LOOP LINE ANNEX (NO. 5)

5. Projected Use of Path on the Loop Line

Estimates for the size of the adjacent population are given in Fig 4. About 55,000 people live adjacent to the line, that is they do not have to cross any road with flows of more than 1,000 vehicles per day to get to the route. Most of these people live within 0.5km of an access point.

Also within this narrow envelope are 25 schools catering for about 12,000 pupils. School children are a particularly vulnerable group as they have not yet had sufficient experience to be able to cycle safely in all conditions. They are also a necessary group to accommodate as they make regular short journeys well suited to cycling and they have no other independent means of transport. Schools could also make good use of the route during school hours, for exercise, sport, lessons and access to other places along the line such as Sefton Park.

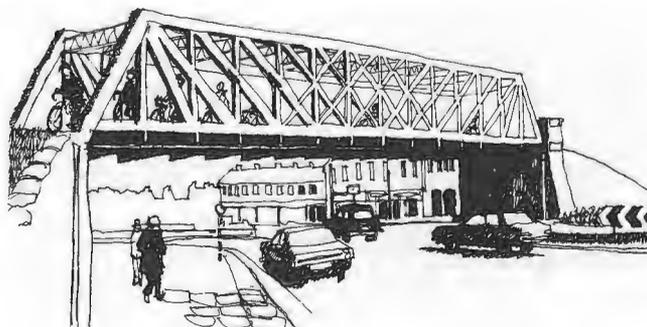
At a wider level about 200,000 people live within 2kms of the Outer Loop Line. This compares with 60,000 within 2kms of Walton Park and 80,000 within 2kms of Sefton Park. Since both these parks are similar in size to the railway land on the Outer Loop Line, this is an interesting confirmation that a linear park would be considerably more accessible than an areal park.

Any estimate of the level of use must of necessity be a guess. However Fig 5 shows how the use might build up.

	No. of trips/year on the route
<i>Schools – 12,000 pupils</i>	
1,000 using the route to and from school	400,000
12,000 using the route during classes 3 × per term	100,000
<i>People living adjacent to line – 55,000</i>	
5,000 using the route regularly 1 × per week	250,000
50,000 using the route say 6 × per year	300,000
<i>Remaining people living within 2kms – 150,000</i>	
All use it say 2 × per year	300,000
<i>Remaining people in Liverpool – 400,000</i>	
All use it say 1 × per year	400,000
Visitors	50,000
Total Trips	1,800,000/year
Total Trips	5,000/day

These levels of use depend upon the creation of a hard dry and all weather surface both along the railway route and down each and every access point to the existing highways at school entrances. This surface would be a tarmac strip, or similar.

Lattice bridge spanning Townsend Avenue.



**ANNEX A3 EXTRACT FROM ANNEX ON SMALL ROUTES
SHOWING THE VALUE OF A SHORT SECTION
OF DISUSED LINE IN URBAN AREAS**



View from Leatherhead Station showing the spare arch under the Kingston Road.

This scheme provides a direct link between the pedestrianised town centre, the railway station, Therfield Comprehensive School and a number of residential areas, parks and community centres in the north of the town. The key to the route mapped out on the page opposite is the use of the unused brick skew arch on the north side of the Kingston Road Bridge. This provides a grade separated crossing of this busy road. The route also passes through the disused station siding area to reach the station and the remaining disused steel bridge crossing over Randals Road. Although it is probable that this site will eventually be redeveloped, it should be possible to arrange for a route in the interim period, and then to make provision for a permanent through route in the final scheme. Short lengths of this route will need to be fenced off against the B R operational line as detailed in the technical section. An estimate of costs is given below.

**Estimate of costs for constructing a route from Clare Crescent to Bridge Street:
1.9kms**

	£	MSC/Wks
1. Prepare base on remains of disused railway and new route, including ramp down to riverside and lay 60mm bituminous macadam 2.5m wide – 1.4km @ £10,000/km	14,000	140
2. Allow sum for repairs to Randals Road Bridge and Station Road Bridge – £10,000	10,000	50
3. Fencing – allow for 600m of fence to BR standards – £1,500/km	900	15
4. Access Points – 4 No. @ £300	1,200	20
5. Sum for modifying CEGB depot entrance gate arrangements if necessary	2,000	20
	28,100	245
Allow 20% for contingency & engineering	5,600	
	£33,700	

LEATHERHEAD KINGSTON ROAD TO TOWN CENTRE.

P. SE / SL = PEDESTRIAN
ACCIDENT SERIOUS/
SLIGHT.
C. SE / SL = CYCLIST
ACCIDENT DITTO
(1975-77)

ALL SAINTS FIRST SCHOOL

YOUTH CENTRE

EXISTING STEPPED RAMP
FOOTBRIDGE

WATERFIELDS ESTATE FLATS
& HIGH DENSITY HOUSING

EXISTING DRIVE AROUND
RECREATION GROUND

COMMUNITY CENTRE

ROUTE PASSES ACROSS
FRONTAGES OF RYEBROOK
MOTORS & HEADLAND
GUAGES FACTORY.

SPARE NORTHERN ARCH
BESIDE OPERATIONAL LINE

THERFIELD COMP. SCHOOL

RANDALLS FARM LANE

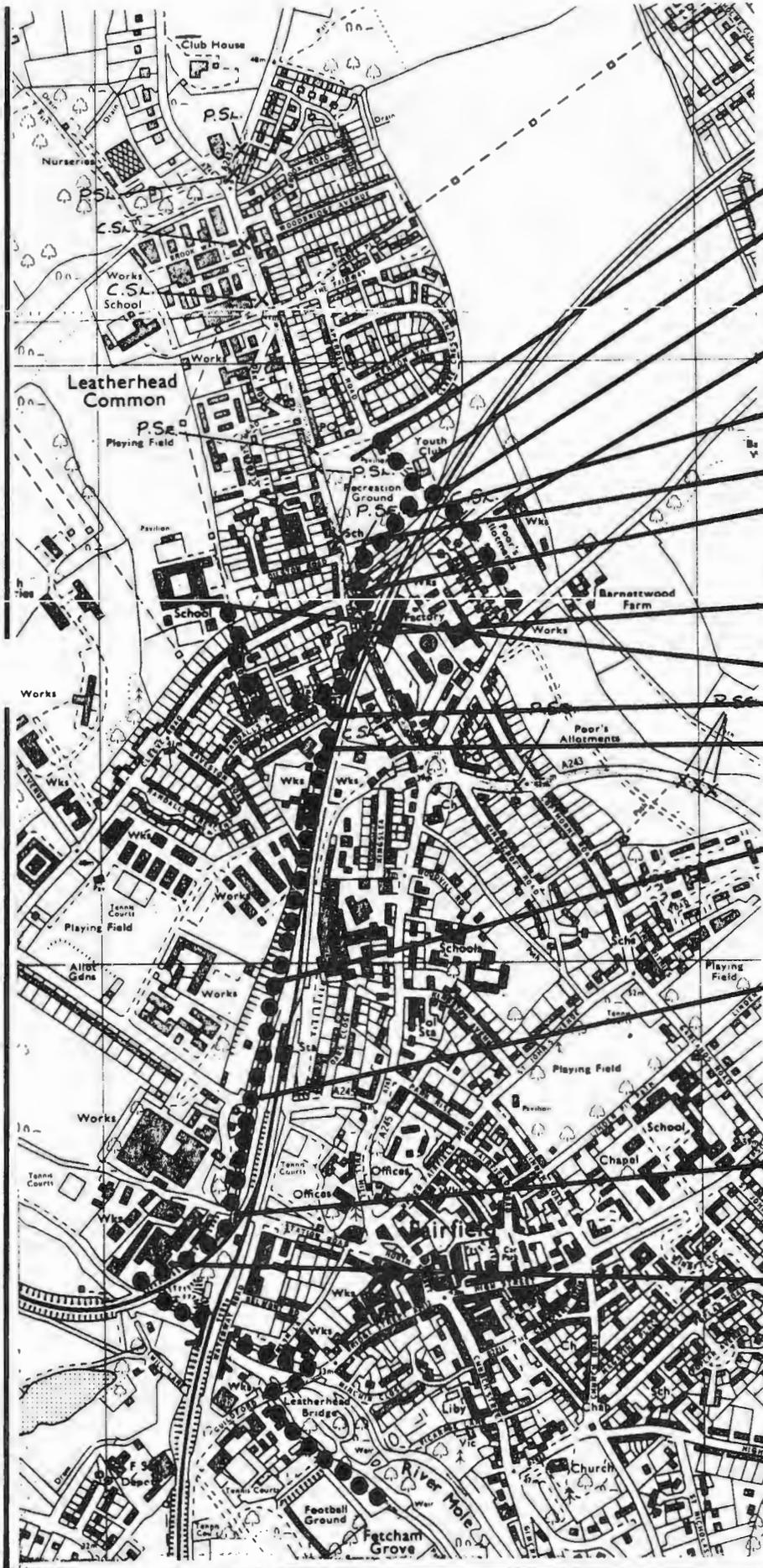
USE SHORT LENGTH OF
CEGB DRIVE IN ORDER TO
REACH WIDE R'WAY MARG-
GIN

ROUTE AROUND DISUSED
RAILWAY SIDINGS TO
REACH LEATHERHEAD
STATION.

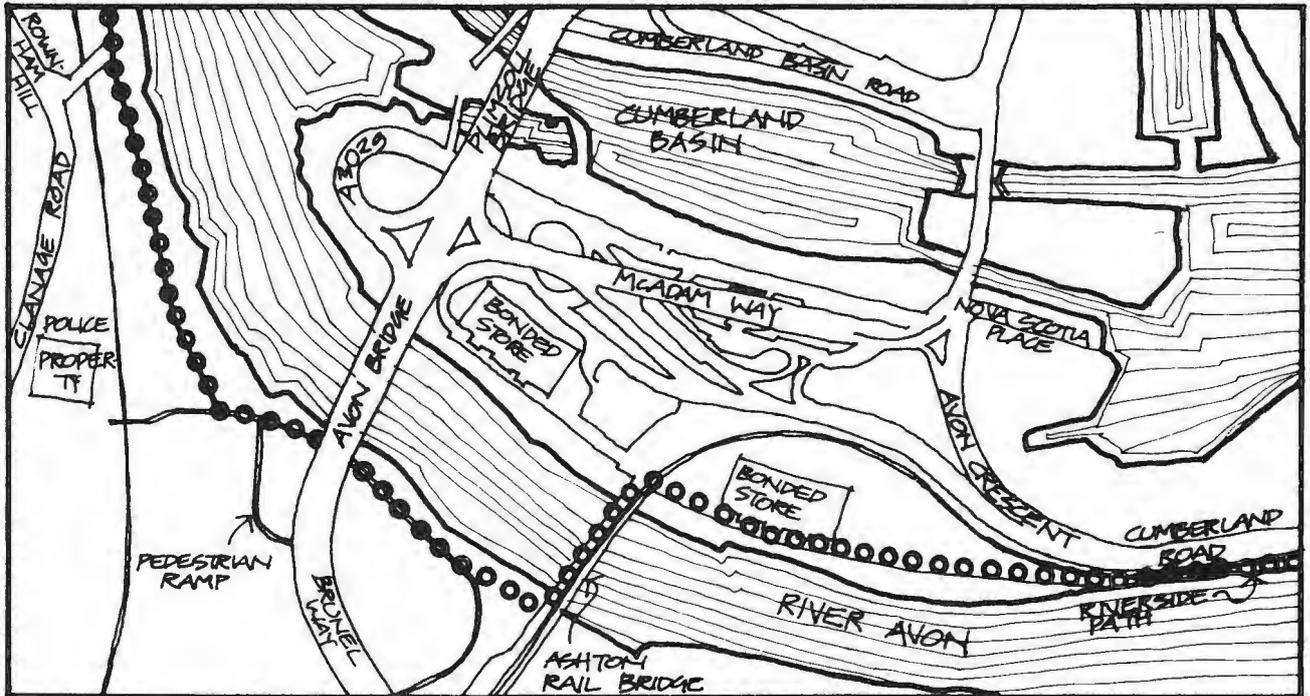
ROUTE ON DISUSED
RAILWAY BRIDGE OVER
RANDELS ROAD
(LARGELY INTACT)

STATION BRIDGE
REQUIRES RE-DECKING

RAMP DOWN
EMBANKMENT TO REACH
RIVERSIDE PATH TO PASS
UNDER RAILWAY BRIDGES
& WATERWAY ROAD TO
REACH PEDESTRIANISED
TOWN CENTRE -
PATH REQUIRES
WIDENING.



ANNEX A4 EXAMPLE OF ROUTE BESIDE SINGLED OPERATIONAL LINE: ASHTON BRIDGE, BRISTOL



PLAN

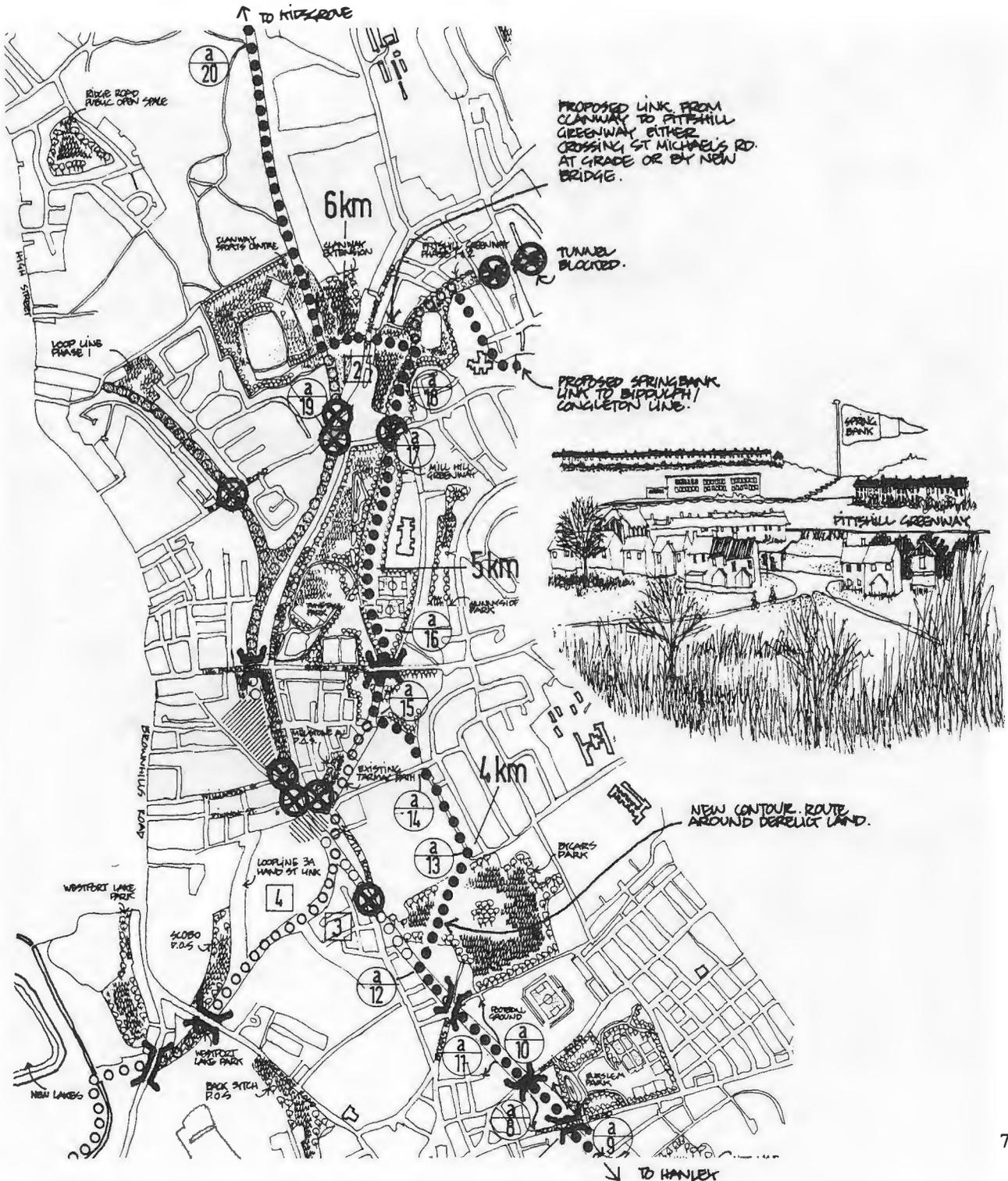


VIEW THROUGH BRIDGE WITH THE A4 IN BACKGROUND

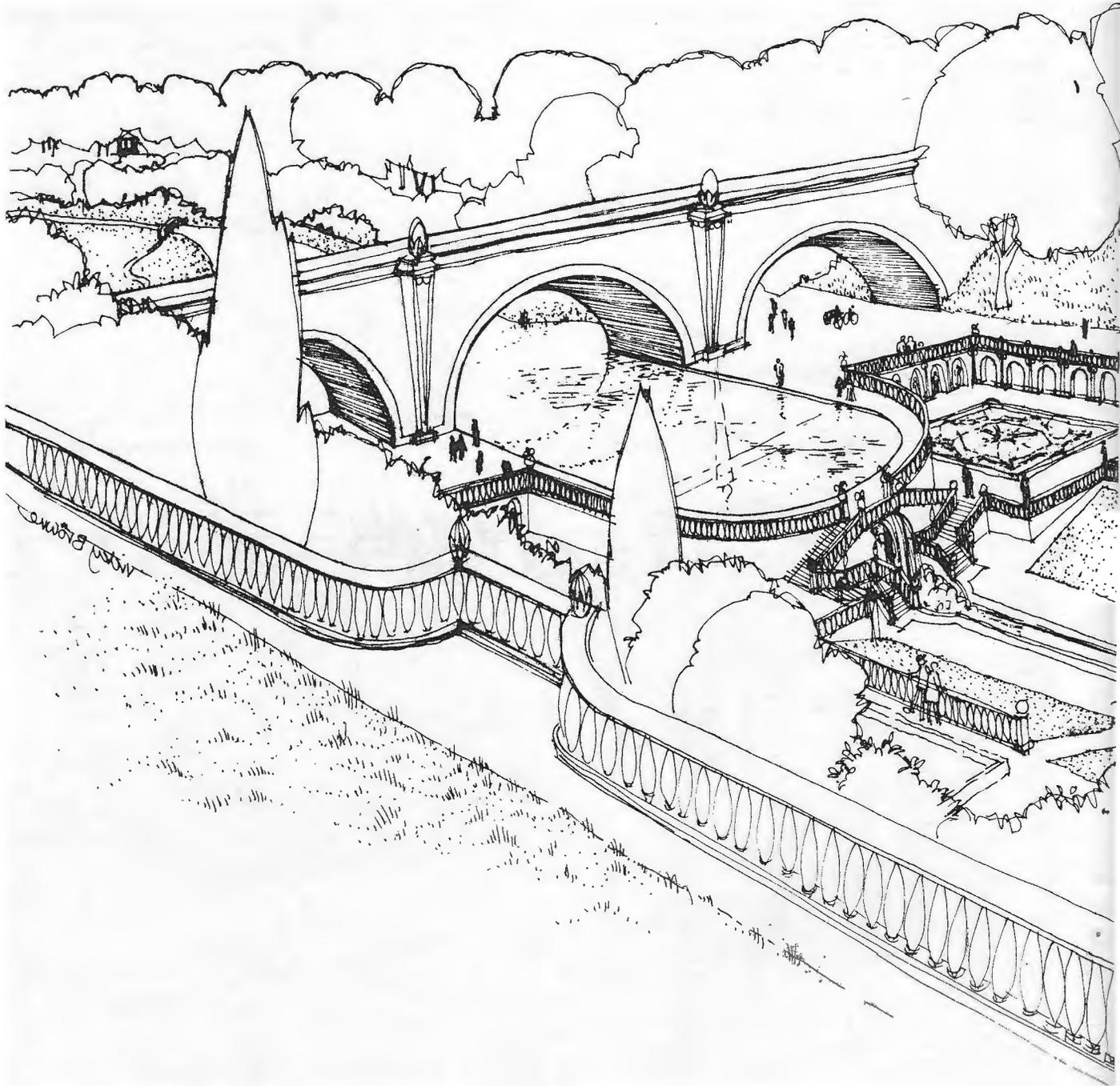
ANNEX A5 EXAMPLE OF LOSS OF CONTINUITY AND CONSEQUENT LOW USAGE IN A MAJOR COMPLETED SCHEME: STOKE-ON-TRENT LOOP LINE

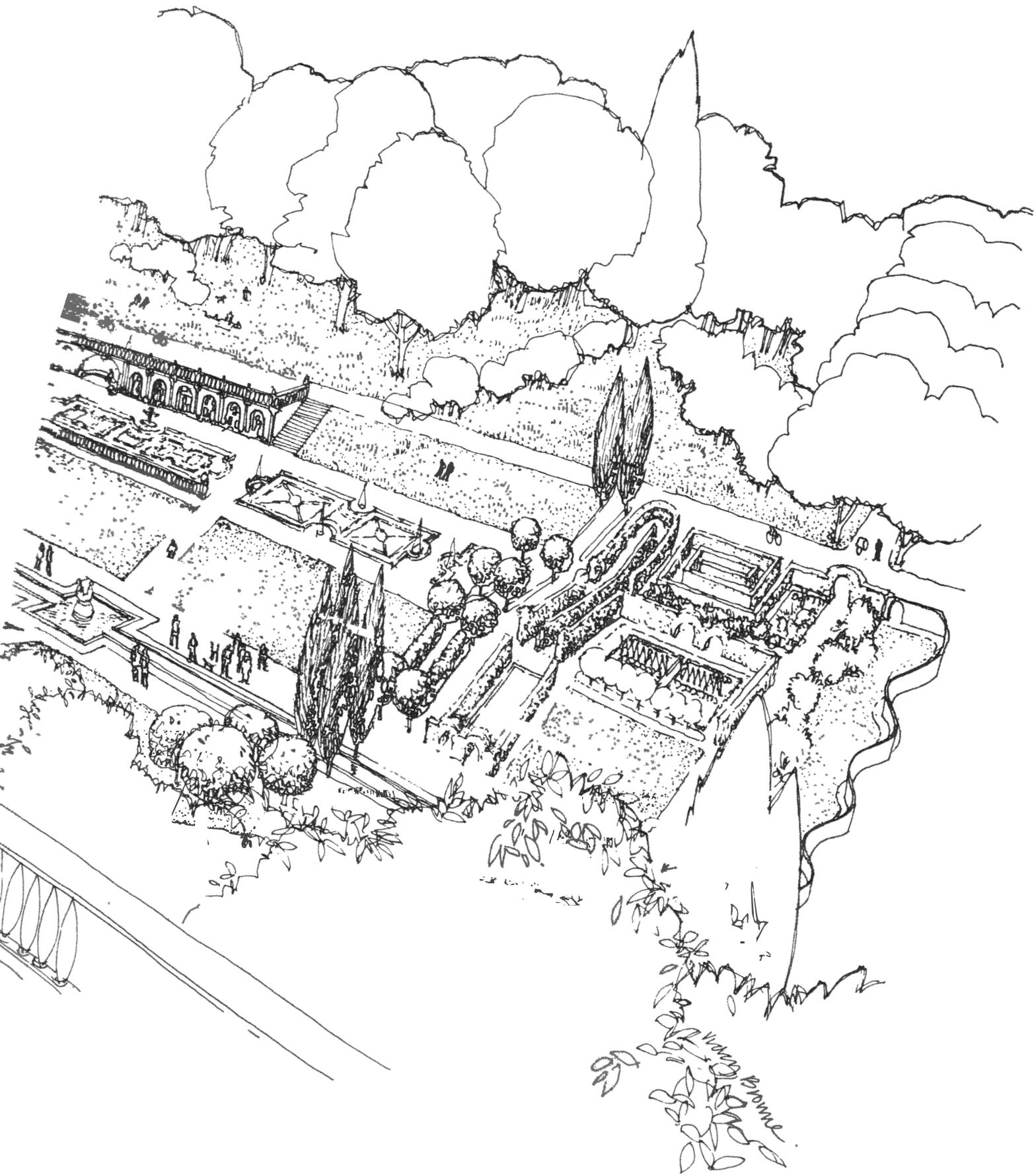
“Although they will provide valuable local access to the major reclamation projects, the outstanding social significance of the Greenways is that they will make communication between different parts of the city an attractive recreational activity”. (Land Reclamation – City of Stoke-on-Trent). However the low level of cycling use observed on this otherwise excellent project must be due to: 1) the rather poor loose shale surface 2) the repeated breaks both physical and psychological in each route.

- : RAILWAY STUDY PROPOSED LINK ROUTE. ○○○ : EXISTING GREENWAYS
- ⊗ : MISSING BRIDGES AND AT GRADE CROSSINGS.



ANNEX A6 IMPRESSION OF THE GREAT CENTRAL CUTTING IN RUGBY WITH ASHLAWN ROAD BRIDGE SHOWING A FORMAL TREATMENT OF A MAJOR EARTHWORK



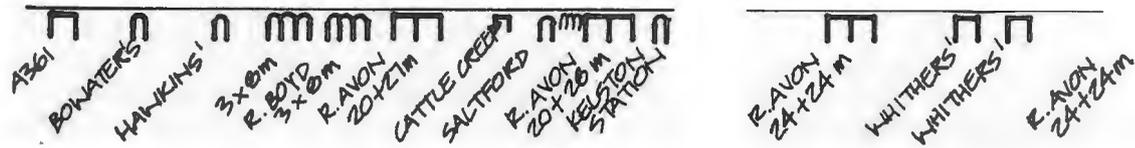


Bitton to Bath Railway Path

BITTON RAILWAY STN.

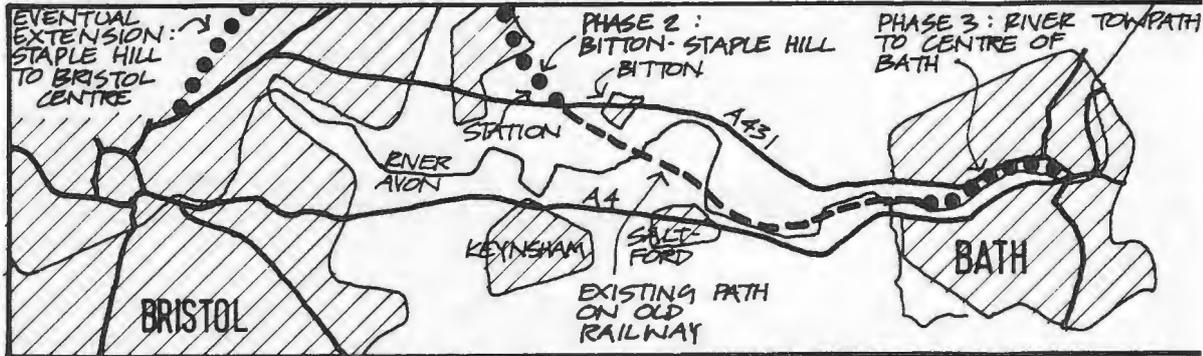
LITTLERS

BRASSMILL LANE, BATH



8 kms.

LINE SCHEDULE OF BRIDGES



SCHEMATIC MAP



1. Tipping Limestone dust onto remaining ballast



2. Spreading dust and raking level



3. Compacting with twin drum vibrating roller



4. Cyclists under A4 road bridge



5. Pedestrians and cyclists near Avon bridge



6. Great British Bike Ride (1981) near Bitton

ANNEX B – OUTLINE NOTES ON TWO BIKE PATH PROJECTS

Bitton – Bath Railway Path, Avon: 8kms

This project was promoted by the local cycling group who arranged for B R to give a lease on the line to Avon County Council who in turn gave them a license to construct and maintain the path. It was built July – September 1979 by volunteers from Cyclebag (Bristol Group). The disused railway formation was double track, of relatively clean ballast with good lorry access at one end and the centre only. 2,000 tonnes of limestone dust (3mm dust) were laid 1.8m wide, levelled and rolled when saturated to give a smooth hard surface. Three access points were built, plus two farmers' accommodation crossings, each with twin gates, cattle grids and stiles. Approximately 800 man-days were put in to the work. The total cost was £12,840 (September 1981 prices) and represents the lowest cost possible for a railway bike path.

The path is well used throughout the year. On a number of occasions, over 1,000 people have been counted on week-end days. These are split roughly 50:50 pedestrians: cyclists. No complaints have been recorded resulting from pedestrian/cycle conflict. Illegal use by motor-cycles, and, in this case, horses as well, has been kept down to a small number of reported cases by means of bars and gates at all access points.

No undue number of complaints have been received from the line-side farmers. One has taken advantage of the change of ownership to insist on 400m of ditch being cleared out. Cyclebag volunteers have one week of maintenance in April of each year. Main work involves checking the adjacent fields for litter before the new growth takes place, spreading grit on any bare patches (about 10 ton/year), cleaning out cattle grids and repairing access points. These last have had to be repaired quite frequently, if possible, immediately after damage is done. The limestone dust surface does not show any appreciable sign of wear except in those places where the blinding layer of dust was not laid thick enough to form a 'crust'. In these places, some stones show on the surface, where they occasionally flick out. This type of surface is unsuitable beneath bridges over the line as without water, the path disintegrates. It is proposed to resolve this by surface dressing the two short lengths in question. The other recorded problem results from ballast stones being thrown off river bridges into the water, and the boats and fishermen below. Efforts are being made to reduce this by blinding the whole width of the bridge with limestone dust, not just the two metre wide path as done originally. This should eliminate all the readily available supplies of stone.

Maintenance over 1979/80 and 1980/81 have incurred about 30 man-days/work per year and £200 plus £50 for third party insurance.

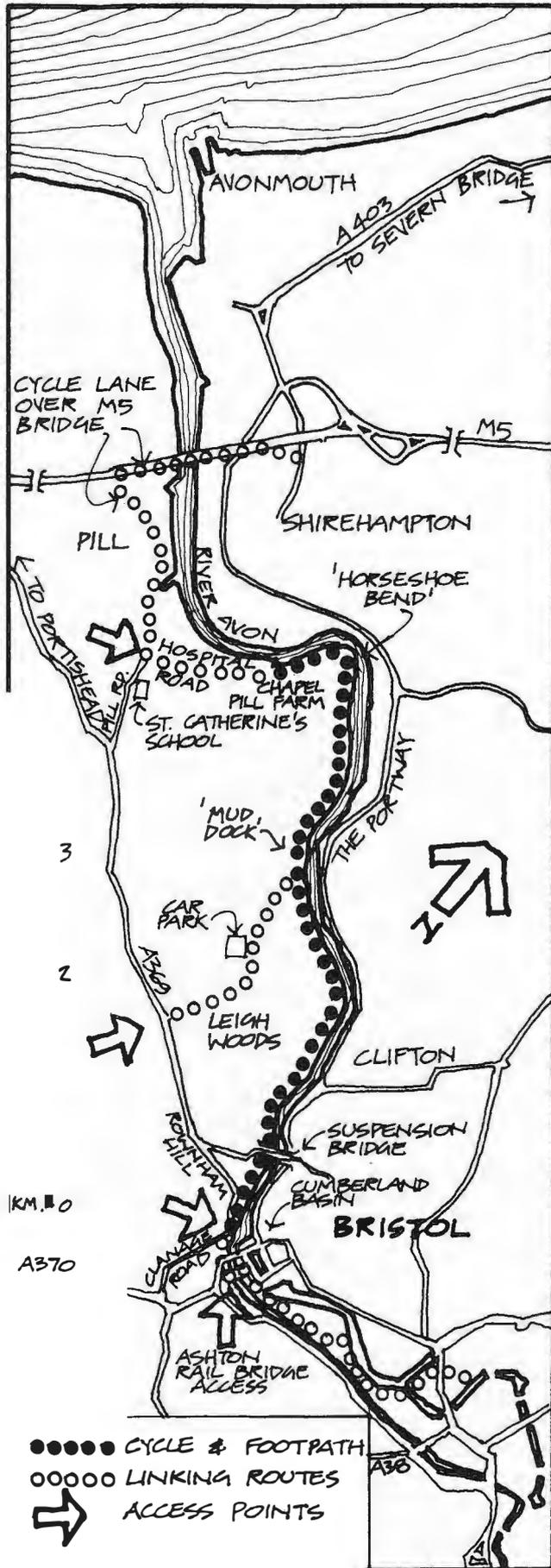
This railway bike path is to be extended a further 7kms towards Bristol with a project starting in September 1981, on the line purchased by Kingswood District Council, and then through the 400m Staple Hill Tunnel, which, together with its approaches, has been leased from British Rail by Cyclebag.

Itemised Costs of Bitton – Bath Project (September 1981 prices)

1.	Hand tools and sundries	511.54
2.	Roller and pump hire	1,015.87
3.	Limestone dust	6,170.12
4.	Gates and other materials	1,170.80
5.	Signs	217.47
6.	Office costs	467.84
7.	Insurances	70.00
8.	Specialist labour and supervision	3,216.89
	Total	£12,840.53
		(£1,605/km – 20 man – weeks/km)

Fig B1 shows some details and views of this route.

Ashton to Pill Path



1. Flood Bank beside River Avon before construction.



2. Stone laid on filter fabric on new path.



3. Finished path at high tide.

**Ashton – Pill Riverside
Bike Path, Bristol: 6.5kms**

This second example is also a Cyclebag project and, although it is not a railway route, it is included as an example of a route built on very poor soils, so giving an upper limit on the cost of this standard of bike path.

Access was only available on Forestry Commission tracks to a depot 400m from, and 40m above, the midpoint of the proposed route. From the depot, a new haul road was built to carry over 3,000 tons of stone by 1 ton dumpers, as access by lorry beyond this point was impossible.

The project proposed to up-grade an existing public footpath, into a bike path with the permission of the various land-owners. The condition of the existing path was as follows:

0.5kms tarmac access road – no work required

2.0kms gravel access road to a firing range which occasional vehicles use (5 per day) – this was heavily pot-holed and required regrading, shaping and drainage ditches cut.

1.5kms of narrow (1.0m wide) on firm ground that was generally rideable in dry weather, but impassable in wet – this was opened out to 1.8m wide, given a minimum of 50mm of scalpings and 25mm (12mm crust.) of limestone dust, rolled saturated, and 100m of steel balustrade was installed in sections where there was a sheer drop to the river up to 10m below.

0.5kms of new path partly across the river saltings, partly cut back into a rock out-crop and partly excavated along the contour through a wood – this section was built of 100mm thick scalpings laid on Terram 70 engineering fabric and blinded with limestone dust.

2.0kms of new path laid on the crest of an existing flood blind bund of local silt – this section was again built of 100mm thick scalpings on fabric.

One of the problems of the difficulties of access endemic to some of these long routes is that the strength of the path is determined more by the requirements of the construction vehicles running on the path, than by the needs of the cyclists and pedestrians using it. The construction of this particular route took place over the Winter (1980/81) and there was no possibility of hauling material over the unmade-up ground. Although this particular job was arranged so that the sequence of work could change according to the weather, it proved necessary to lay the reinforced construction for the whole of the direction from the haul road to Pill, whilst in the southern direction it was possible to work backwards in the drier weather.

The work was carried out by a Manpower Services Commission team averaging 10 W B P E (work based project experience) school leavers and two supervisors, together with volunteers working at week-ends over a 10 month period. One of the supervisors had a number of years working for road construction companies, whilst the other had worked with a welding equipment manufacturer. It is crucial that supervisors are both proficient and are able to communicate their skills to the MSC team. Those who stayed the full 6 months (and most who did not left within 2 weeks) became proficient at the job. The overall management arrangement is illustrated in Fig 7.1.

The cost of materials and plant was covered by grants from Bristol City Council and the Countryside Commission. The day-to-day management was the responsibility of Cyclebag.

1.	Hand tools and sundries	348.00	
2.	Plant, purchase, hire, repairs and fuels	3,777.00	
3.	Limestone scalpings and 3mm dust	6,530.00	
4.	Terram fabric	1,149.00	
5.	Other materials	402.00	
6.	Fencing and balustrades	950.00	
7.	Small items, mainly equipment and supplies for workers	940.00	
8.	Office and administration costs	600.00	
9.	Supervision and engineering costs	2,000.00	
	Total	£16,696.00	(£4,174/km plus 100 man- weeks/km MSC & 20 man- weeks/km Volunteers

ANNEX C DETAILED ESTIMATES FOR VARIOUS ASPECTS OF CONSTRUCTION

CA	ESTIMATES OF THE COST OF MATERIAL, PLANT, HAND TOOLS AND PRELIMINARIES FOR THE CONSTRUCTION OF THE PATH ITSELF	
A1	<i>2m wide path on clean railway ballast</i>	£/km
A1.1	Repairing access points, temporary gates, fences, stone infilling etc.	100.00
A1.2	3mm down limestone dust or equivalent, 250 tonnes/ km @ £3.00	750.00
A1.3	Vibrating roller – hire, fuel & maintenance	200.00
A1.4	Dumper & other site vehicles	50.00
A1.5	Waterpump & hoses for dry weather work	50.00
A1.6	Consumable Hand Tools	50.00
A1.7	Insurances and losses	50.00
A1.8	Site accommodation (where necessary), stores, protective clothing, first aid and other preliminaries	50.00
		50.00
A1.9	Sub Total	£1300.00
A1.9a	Allow for 2.5m wide path. Note costs of getting materials to site and stone and dust to the actual point required will vary considerably from site to site. Typically vehicular access to railway routes is infrequent. If the line had two tracks then generally the problem is small, but work on single lines on high embankments will entail careful planning at the least, whilst on canal towpaths, for instance, it is likely that double handling onto dumper will be required.	1600.00
A2	<i>2m wide path on clogged and overgrown ballast</i> Note this is very similar to A1, except that the vegetation & dirt has to be removed from off the ballast, and the ballast then blinded and smoothed as below. Usually the dust requirements are about 150 tonne/km, whilst the dozer requirements to clear off are about 3-4 days. The cost of these two items balance out for this type of railway and the estimates remain £1300 & 1600 as in A1. The estimate for the MSC project man weeks required = 40/km. The limestone dust must be rolled when wet, preferably so saturated that a “cream” is squeezed out before the vibrating roller.	
A3	<i>2m wide path on the remains of ballast</i> Here the surface may be very uneven, the sub base may be waterlogged and poor in places. However some ballast will remain and this could be shaped into a reasonable path before more stone is added and the whole then blinded as in A1.	
A3.1	Hire of dozer to clear back rubbish and growth and to reshape the surface	500.00
	sum	
A3.2	Lay new sub base stone, adding 50mm thickness to old on average, scalplings 40mm down or similar	400.00
A3.3	Blind and lay skin of 3mm limestone dust or similar = 50 tonnes/km @ £3.00/tonne	450.00
A3.4	Vibrating roller-hire, fuel and maintenance	200.00
A3.5	Dumper – Increased use over (1:4) as almost certainly some transshipment will be required.	250.00
A3.6	Waterpump and hoses.	50.00
A3.7	Handbooks, insurances, losses & other preliminary (A1.6 – 1.8)	150.00
		£2000.00
A3.8	Subtotal	£2000.00
A3.8a	Similar for 2.5m side path	2300.00
A4	<i>2m wide path on new routes and poor soils.</i> Here two problems predominate. The stone and dust materials will almost certainly have to be double handled, since it is probable that 16 tonne delivery vehicles will not be able to get to the point of use. The path will have to be built strong enough to act as a haul road for these dumpers. This will probably be rather stronger than is required for a walking, cycling track alone.	
A4.1	Hire of dozer/grass cutters/rockdrills/compressors to prepare route. This varies widely depending upon whether it is a new route being cut out of a hillside, a canal bank being cleared of years of accumulated dredgings, or a smooth field or flood bund – allow sum	500.00
A4.2	Lay one layer of polypropylene filter/engineering fabric (Tèrram 700 or similar). This may be laid direct onto the roughly cleared soil – grass should be left in place. Its function is to prevent soil particles from mixing with the sub-base stone and destroying its strength, and it provides a measure of tensile reinforcement to the base – 30p/m ²	700.00

A4.3	Timber side boards may be needed during construction – second hand timber is suitable at least 100 X 25 – allow 10p/m	£/km	200.00
A4.4	Lay 100mm of stone – 40mm single size is best, but scalplings or similar are cheaper. Flakey stones are to be avoided as they have little mechanical interlock – 400 tonnes/km @ £2.00/km		800.00
A4.5	Blind with 3mm down limestone dust or similar – 150 tonnes/km @ £3.00 km		450.00
A4.6	Vibratory roller, hire, and maintenance		200.00
A4.7	Dumper – here double handling and long hauls between access points are usually necessary		450.00
A4.8	Waterpump and hoses		50.00
A4.9	Handtools, insurances, and other preliminaries		150.00
A4.10	Sub total		£3300.00
	Estimate for MSC project manweeks required		90.00
A4.10a	Similar for 2.5m wide path		£3800.00

CB *Estimates of cost of materials for various types of fences*

B1	Corstag Dropper Fencing prices per km	No	Price each	Total
B1.1	Straining posts (2.3m x 127 x 127)	20	6.87	137.40
B1.2	Anchor Struts (2.1m x 100 x 75)	40	3.14	125.60
B1.3	Line Posts (2m x 100 x 100)	120	3.65	438.00
B1.4	Galvanised Droppers 550mm	280	0.32	89.40
B1.5	Galvanised Droppers 750mm	420	0.45	189.00
B1.6	Dropper Clips	3000	1.36/100	40.80
B1.7	Ratchet winders + hollow tubular bolts	70	2.06	144.20
B1.8	Hairpin staples	350	0.04	14.00
B1.9	Wire, plain galvanised mild steel 10g.	7000	£32/km	224.00
				1402.40

Alternative to B1.6, B1.7 and B1.8. High Tensile Steel Wire and fittings

B2 Plain Fencing, Posts and Stakes conforming to M.A.F.F. Standard Costs Part 2

B2	Quantities & Prices per km	No	Price each	Total
B2.1	Straining Posts (2.3m x min 125mm top diameter)	20	4.42	88.40
B2.2	Struts (1.8m x min 100 round)	40	2.07	82.80
B2.3	Anchor stakes (1.0m x 75mm face)	40	0.27	10.80
B2.4	Stakes (1.8m x 63 min top diameter)	360	0.91	327.60
B2.5	Galvanised straining eye 12.5mm x 300	140	0.58	81.20
B2.6	Galvanised wire staple 30mm	10kg		10.00
B2.7	Wire, plain galvanised mild steel 10g	7000m	32/km	224.00
				824.80

Alternative to B2.7

B2.8	Sheep Fence 6 lines wires (8g), uprights 11g @ 300mm cs.	1000m	357.00	357.00
B2.9	Single top wire (8g)	1000m	50.00	50.00
B1.10	High tensile stock netting 8 No. 12g wires with stay wires at 300mm centres	1000	480.00	480.00
B1.11	One strand barbed wire	1000	60.00	60.00
B1.12	Pre-formed line connectors	140	0.42	59.00
B1.13	Hairpin staples	350	0.04	14.00

B3 Post and 2 rail fencing.

B3	Quantities & Prices per km	No	Price each	Total
B3.1	Posts, half round soft wood, peeled pointed, topped with anti-split plate, 1.8m x 100mm min across face	500	1.33	675.00
B3.2	Rails, half round softwood, 100mm across face, 4m lengths	500	3.00	1500.00
B3.3	100mm galvanised nails	50kg		42.00
B3.4	Wire or zinc wrapover straps		sum	52.00
				£2242.00

B4 Mild steel balustrade

B4	Quantity & Prices per 100 km	No	Price each	Total
B4.1	Stanchions 1.5m long, 75 dia tube @ 3m centres, profiled tops	34		
B4.2	100mm dia. top rail, covering plates each end	100m		
B4.3	Paints			

B4.4	10g high tensile wire	300m		
B4.5	Connectors			
B4.6	Generator & welder to site to weld up prepositioned stanchions in prepared holes, and weld on all wire fixing lugs.		Sum	200.00
B4.7	Lean mix concrete		Sum	20.00
B5	Vehicular crash barrier – Armco type			
	Quantity & Prices	No	Price each	Total/m
B5.1	Flexrail Type 2 3.8m long	1	29.48	7.76
B5.2	Standard galvanised steel posts*	1	17.00	6.00
B5.3	Fixing bolts	2	0.23	0.20
B5.4	Excavation and concrete		3.00	1.00
				£14.96/m

*Note: 150mm square timber posts could be more economical

CC *Estimates of cost of materials for gates and barriers*

All softwoods to be vacuum/pressure treated with copper-chrome-arsenate solution or similar to a minimum dry salt retention of 0.4 lbs per cu. ft.

C1	Timber Field Gates			Price
C1.1	Gate 3.6m wide			31.00
	Top Rail – 125 × 75 to 75 × 75			
	Under rails & cross braces – 75 × 25			
	Hanging Stile 125 × 75			
	Shutting Stile 75 × 75			
C1.2	Hinge Set with adjustable bottom hinge			10.30
C1.3	Spring Catch Set			4.30
C1.4	Hanging post 2.4m × 175 × 175			13.90
C1.5	Slam Post 2.3m × 150 × 150			10.10
C1.6	Lean mix concrete	sum		5.00
				<hr/>
				74.60
C2	Hunting Gates			
C2.1	Gate 0.9m wide, similar spec to C1.			13.30
C2.2	Hinge set with double swing rocker-bottom hinge to self-close			16.90
C2.3	Heavy latch			6.80
C2.4	Hanging Post – 2.4m × 175 × × 175			13.90
C2.5	Slam Post – 7.3m × 150 × 150			10.10
				<hr/>
				66.00
C3	Heavy Weight Steel Gates			
C3.1	3.66m wide galvanised gate			54.30
C3.2	Hanging Posts 140mm dia. 7 gauge galvanised			33.10
C3.3	Slam post 125mm dia. 10 gauge			20.70
C3.4	Lean mix concrete	sum		5.00
				<hr/>
				£113.10

CD *Estimates of Cost of materials and plant for the construction of access points*

Each access point will have different characteristics depending upon the difference in elevation between the railway path and the road or path at the entrance to the route. There will also be varying requirements for gates, controls or open entrances and different details to resolve in piercing existing gates, walls or fences and then perhaps providing a crash barrier and dropped kerbs. For the purposes of this study it has been necessary to cost an average type with the following characteristics:

- (i) Total length of access link 40m
- (ii) width of path 2m
- (iii) construction, ramped access at 1:10 gradient finished with a new grand type of path construction.
- (iv) blinded dust finish.
- (v) wicket gate or crash barrier or stile.
- (vi) dropped kerb.
- (vii) signboard.

		£
D1.1	Hire of plant to construct ramp as necessary, average 6 hrs work	50.00
D1.2	Construction of new path @ £3.50/m	140.00
D1.3	Make good piercing of boundary – sum	20.00
D1.4	Control – eg. 0.9 wide ‘hunting’ gate	66.00
D1.5	Manufacture and fixing of directional sign	14.00
		<hr/>
		300.00
		<hr/>

ANNEX D BIKE PATHS, WILDLIFE AND FARMING

This section discusses the effect of reclaiming disused railways as bike paths on the line-side habitat and its wildlife and the interaction between its users and adjacent land-owners.

'From nature's viewpoint, railways are best kept as they are – as unintentional nature reserves with the trains still running and vegetation kept under control. Too often, abandoned railways deteriorate as wildlife habitats unless they are managed as nature reserves and invasive scrub is kept at bay. The sun-loving plants and animals flourish and people can freely walk and enjoy it all.' – William M Condry – 'Natural History of Wales' – Collins.

D.1 Wildlife

Disused railway lines, by their very nature, provide a wildlife habitat of considerable potential. The original engineering works mean that lines are rarely on a level with the land immediately alongside, but are built up on embankments, run through cuttings or cling to hillsides on 'cut and fill'. Free draining embankments create a dry environment, often having south facing slopes and constructed with a mineral-rich fill imported from outside of the locality. Conversely, cuttings, particularly where drains have failed, are frequently damp or even flooded.

On many lines, the diversity of plant and animal life is far greater than would normally be supported on the surrounding land. Although in a purist sense, these habitats could be considered artificial, having been established over many decades, they are now an integral part of the landscape and are accepted as such by their wildlife inhabitants who, in most cases, have a life-span far shorter than that of human beings and are, therefore, many generations removed from the original colonisers.

Their linear form means that railways provide an ideal corridor linking areas of suitable habitat in an agrarian landscape and they are frequently used as a safe passage by the larger mammals – foxes, badgers and particularly deer.

At the same time, in a countryside which is still witnessing a depletion of its hedgerows, disused lines offer a significant substitute as a habitat for smaller mammals as well as tying together larger isolated pieces of woodland or scrub.

They are a suitable location, too, for birds to nest, rear their young, feed and roost. Birds of prey again especially benefit from them as hunting grounds.

The dry sides of embankments have long been recognised as a place to find reptiles, particularly slow worms and lizards.

Once railways close, maintenance is reduced to a minimum and non-essential drainage quickly falls into disrepair creating pools and wetlands, fulfilling a real need at a time when these habitats are becoming so scarce elsewhere in the countryside as a result of agricultural drainage schemes. Such wetland areas are rapidly colonised by various species of amphibia. Some lines had their own reservoirs, a remnant of the days of steam locomotives, and some of these are even stocked with fish as well as be-



BOUPEAN

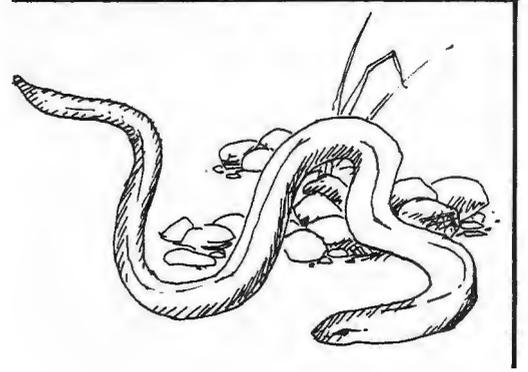


ROE DEER

ing utilised by frogs, newts and toads.

The diversity of ground conditions has created a wide variety of habitats which has contributed to the botanical wealth of many disused lines. Some species, such as rose-bay willow-herb, are traditionally found on railway embankments. Others, like lupins, are escapees from gardens whose colonisation was aided by the railway itself, as passing trains

SLOW WORM



picked up seeds in one place and deposited them at random along the route.

The wet areas, too, are not only of benefit to fauna, but are equally rapidly invaded by waterside and freshwater plants ranging from juncus to bogbean.

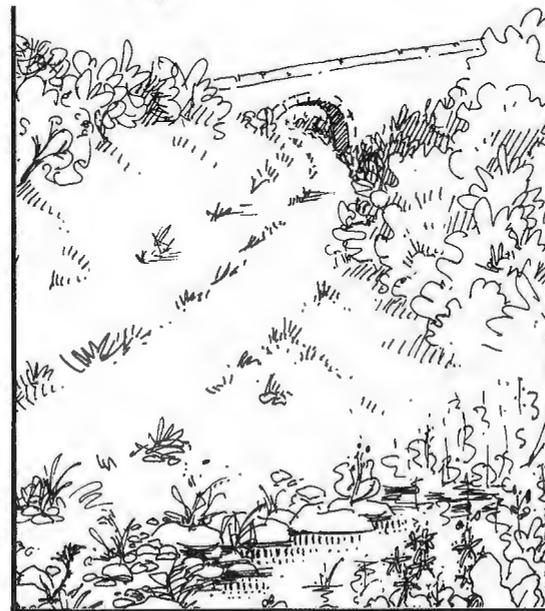
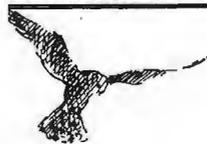
Insects and other small animals have benefited from the richness and variety of the flora and have similarly made use of disused lines, a process which often encompasses a spectrum of species ranging from those living among the long-established areas of vegetation to the colonisers which gradually move into the parts formerly occupied by the tracks and kept open by the trains.

D.2 Effect of a Railway Path on Wildlife

Experience to date on those lines open to the public in Britain has shown that the replacement of trains by cyclists and pedestrians is rarely detrimental to the wildlife inhabitants and, more often than not, is actually beneficial.

Mammals are generally crepuscular or nocturnal and it is rare for their activities to conflict with human users. Apart from illegal actions, such as badger digging and deer poaching, litter is the greatest enemy of small mammals. An estimated nine million perish in the eleven million or so bottles and cans that are discarded in the countryside every year. Whether the volume of such litter from recreational use will be any greater

than that from when the line was in operation, or worse, when it appeared derelict and was used as a dumping ground by all and sundry, is hard to say, but litter collection is obviously an important maintenance item that should be considered.



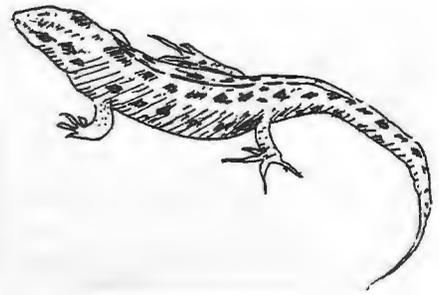
KESTREL

than that from when the line was in operation, or worse, when it appeared derelict and was used as a dumping ground by all and sundry, is hard to say, but litter collection is obviously an important maintenance item that should be considered.

Birds, apart from the risk of nest robbers and those with guns who would probably trespass on to the formation, even if it was not open to the public, are also little disturbed and a wide variety of species can be seen on those disused lines already in use for recreation. Indeed, the constant presence of people, far from scaring away wildlife, tends to make it more tolerant of humans and it is often easier to obtain close views of birds in such places than in less frequented countryside.

Although reptiles, amphibia and other small animals are open to abuse, they are rarely seen and the direct danger to them is small.

It is the flora along disused lines that is most at risk, a danger not only for its intrinsic loss, but also because of the possible loss of the habitat it provides for other species. Indeed, there are a very few areas of old formation which have a high botanical value and, in exceptional circumstances, a case could be made for their preservation by excluding the public. For the most part, however, the native ground flora is fairly robust and, unless subjected to persistent trampling, is quick to recover.



LIZARD

However, the incentive to leave a well-built railway path will be minimal and damage to plant life correspondingly slight.

The most significant damage on the lines already developed for pedestrian use occurs in the Autumn during the blackberry time when considerable trampling takes place in the immediate vicinity of bramble bushes. Not only is blackberry-picking a reasonable rural pursuit, but most other plants have already set seed and are waning then so that whilst the devastation itself is visually intrusive, the real harm is small.

Deliberate damage can occur, of course, but is equally likely to happen if the land were merely left derelict after closure and not opened for recreational use. It is probably reasonable to surmise that an increased public presence diminishes rather than increases vandalism because of the greater likelihood of witnesses to the acts of destruction.

Disused railway lines converted for use by cyclists and pedestrians are a positive conservation asset of great value to the community. The majority are sufficiently wide to maintain their own viable populations of fauna and flora, as opposed to statutory footpaths and bridleways, which are rarely wider than the surface of the path itself. They can, therefore, provide a more interesting recreational experience purely from within their own resources as well as, very often, giving a much better view of the surrounding countryside.

They also hold possibilities for local natural history bodies, such as County Naturalists Trusts, to take on management agreements for the care and maintenance of the parts not occupied by the path itself. This would enable such bodies to have a measure of control over those areas identified as being of scientific value or at particular risk and to help with interpretation work.

D.3 Adjacent Farms



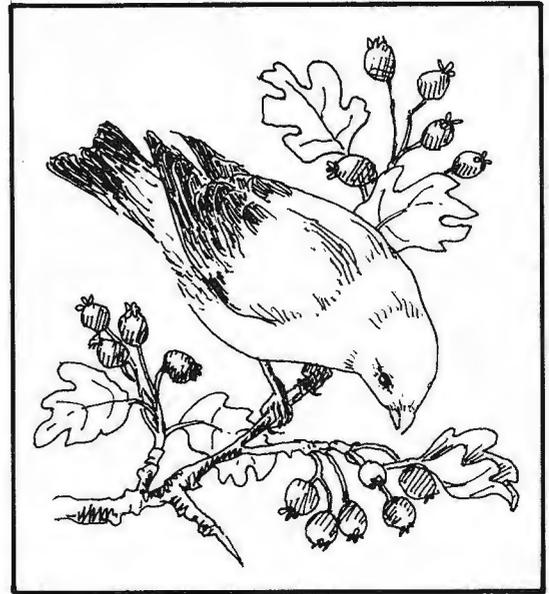
WREN & SILVER STUDDED BLUE BUTTERFLY ON GORSE

The reclamation of disused railway lines for use by pedestrians and cyclists is often viewed with concern by neighbouring landowners. Almost always, they feel that the line slices through their holding, and if they could only buy the land, it could be joined into the adjacent fields. Apart from the fact that this is rarely possible on physical grounds without great expenditure on earthmoving and grading, the process can also lead to the formation of inaccessible isolated pockets of land where occasionally, owners of properties alongside the old railway decide against purchasing their portion of the line – it remains with British Rail although the landowners on either side have bought their pieces.

Farmers also see disused lines as well-drained and surfaced tracks which make ideal routes for moving stock and machinery to outlying fields. If the land is to be reclaimed as a recreational route, this sort of use will, unfortunately, conflict with pedestrians and

cyclists and is, therefore, inadvisable in most cases. Certainly, as long as the original crossing points, which existed when the railway was operational are retained, then these farmers will be no worse off than before the line closed.

Perhaps their greatest concern is that an extension in public access will increase the threat of trespass. Disused railway formations, although not so tightly confined as to lead to feelings of discomfort and to detract from the experience of the countryside, do have finite boundaries. There is less chance of straying inadvertently from the path as there is with statutory rights of way that are not waymarked, and this leads to greater confidence on the part of the walker and cyclist.



GREENFINCH ON HAWTHORN

They feel 'safe' and welcome and tend, as a result, to avail themselves of the facilities more frequently. The intensity of use of those lines already open for recreation bears witness to this fact. Unintentional trespass is, therefore, reduced rather than increased by employing old railway formations in this way.

Furthermore, it gives to people the opportunity of penetrating deep into the countryside, enabling them to see it from an unfamiliar viewpoint and yet, at the same time, maintaining total segregation from the working farmland. The opportunities for various links, particularly, in this context, with places of recreational interest, are manifold.

Intentional trespass is quite another problem. It can be discouraged by developing impenetrable line-side vegetation and by the good maintenance of fences, although even these will not deter the determined trespasser.

The majority of minor thefts involve the stealing of vegetables from areas of land growing garden crops on a field scale. A high level of usage of the reclaimed line by the public is of some deterrent value because people are often around to witness any thefts. Experience

has also shown that careful management of line-side vegetation to create a screen of trees and bushes, in effect to 'hide' the crops, works well.

The reclamation of disused railway formations for use by cyclists and walkers removes from farmers the possibility of acquiring or using the land themselves (except possibly under grazing agreements). At the same time, it does have advantages for them. By concentrating people in areas specifically set aside for recreation, it effectively reduces trespass on farmland. Perhaps more important, however, it gives to derelict land a use for which it will be managed constructively so that illegal tipping is controlled, litter is reduced and not least, fencing, often allowed to seriously deteriorate to the farmers' cost after operational use ceases, is repaired and maintained in a stockproof condition.



BLACKBERRY PICKING

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