

Scottish Waterways

Forth and Clyde Canal

Union Canal

A Report to the Secretary of State
for the Environment

October 1974

INLAND
WATERWAYS
AMENITY
ADVISORY
COUNCIL

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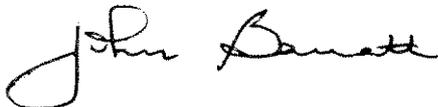
October, 1974

Dear Minister,

When this Council was reconstituted earlier this year by the Secretary of State for the Environment, it was agreed that one of our priorities for action should be a reappraisal of the Forth and Clyde and the Union Canals in Scotland. Our concern for their future is reflected in our findings, which are set out in the enclosed report. We believe that these waterways have a wide potential, not only for recreation and leisure, but also to serve the commercial needs of the Scottish Lowlands.

We would hope, therefore, that you could see your way to accepting our recommendations and setting in motion, as a matter of urgency, the action which we would strongly recommend to you.

Yours sincerely,



John Barratt
Chairman

Mr. Denis Howell, M.P.,
Minister of State for Sport and Recreation,
Department of the Environment,
2 Marsham Street,
LONDON, SW1P 3EB.

INTRODUCTION

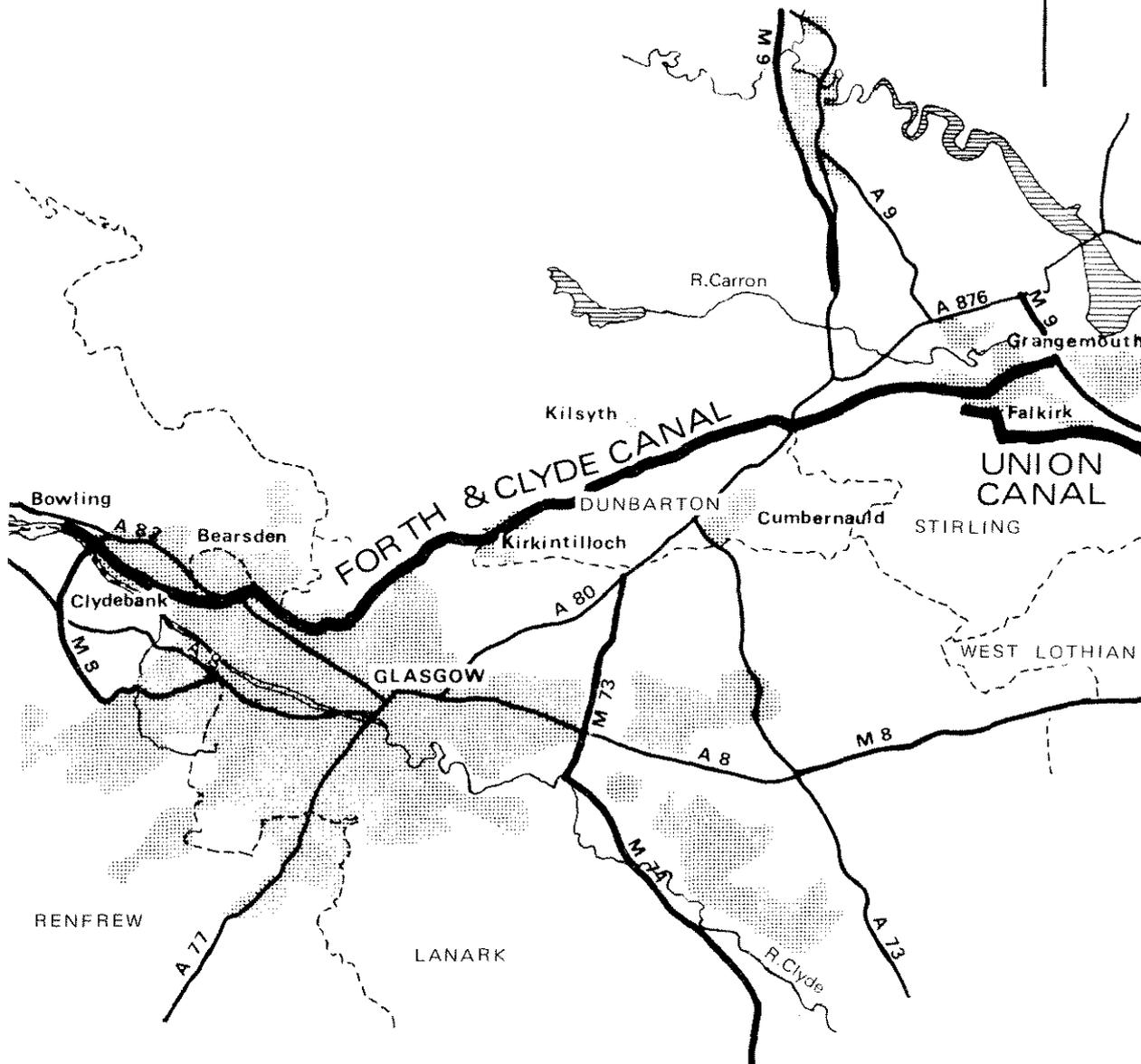
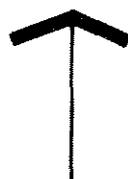
1. The Authority responsible for the "Forth and Clyde" and "Union" Canals is the British Waterways Board. These canals are Remainder Waterways as defined by the Transport Act, 1968. There are, therefore, strict limitations on the Board's powers and finances. In fact Section 108 of the Act specifically requires the Board to deal with them in the most economical manner possible, consistent with the requirements of Public Health and the preservation of amenity and safety.
2. Representations have been received by both the Board and the Department of the Environment for these canals to be re-opened to through navigation.
3. In the light of the growing public concern for the future use of Britain's canals, particularly with regard to their recreation and amenity potential, the Inland Waterways Amenity Advisory Council have taken a fresh look at these Scottish waterways.
4. The Council members would wish to acknowledge all the help and advice given to them, and in particular the assistance given by the British Waterways Board's Engineer for Scotland, Mr. Brian Davenport and his colleagues, and the Rev. Hugh MacKay representing the Scottish Inland Waterways Association.

LOCATION MAP
FORTH & CLYDE
CANAL

0 1 2 3 4 5

SCALE IN MILES

NORTH



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THE FORTH AND CLYDE CANAL

5. The Forth and Clyde Canal which was built between 1768 and 1790, was finally closed on the 31st December, 1962. It linked Grangemouth on the Forth, to Bowling on the Clyde, and was 35 miles long. When used in 1962 it was navigable by vessels up to 8 feet draught, 20 feet beam, 70 feet overall length, and with 65 feet headroom. It possessed thirty-nine locks giving a total rise from sea level of one hundred and fifty-six feet.

6. With the great benefit of hindsight, it is a sad reflection on the short sighted thinking in the past on our inland waterways, that the recognition of the amenity revolution in Scotland came some 12 years too late when the Forth and Clyde had ceased to be an active waterway. The British Waterways Board have perhaps been too efficient in carrying out their statutory duty and any re-opening now presents a major task.

7. The members of the Council visited all the various obstructions. It will be seen from the attached appendices how, for example, the highway engineers seized the opportunity provided by the closure in 1962, to remove bridges and culvert the canal. The Council noted that locks had gone into decline and parts of the canal, particularly in Glasgow and Grangemouth, had been filled in. Some of the filling in was for public open space purposes, other, such as in the Grangemouth area, was for the roads and warehouses which now stand on the line of the waterway.

8. The water levels have been reduced, although as this is one of the deepest canals, it is likely that the remaining depth is still adequate for canal craft, being often up to 6 feet deep.

9. The task involved, therefore, in re-opening the canal is formidable, and certainly cannot be achieved in the short term, if only for the fact that parts of the canal do not now exist.

10. Despite the efforts of the British Waterways Board to co-ordinate a programme for action within their terms of reference under Section 108 of the 1968 Transport Act, i.e., to deal with the Canal in the most economical way possible – the waterway re-development appears to have been regarded as isolated stretches of water rather than what was once an attractive "Trans-Scotland Waterway".

11. For example it is understood that the Scottish Office have approved in principle the expenditure of £600,000 by the Clydebank Town Council on about 3 miles of the Canal. The proposals are designed to provide a safe channel by concentrating on:—

- (a) The limiting of the water to very shallow depths.
- (b) The nature of the Canal Bed.
- (c) The ease of access for rescuers in the event of accidents.
- (d) The ease of getting out of the water.
- (e) The rubbish thrown into the Canal – this to be cleared after periodic de-watering.

The total Estimated Cost of the proposals (1974) were given as £600,000 made up as follows:—

Canal Treatment (i.e. Removal of Silt, Provision of In-fill and construction of sloping channel)	353,000
De-watering	62,000
Landscaping, Planting etc.	81,000
Structures	22,000
Contingency Works (estimated at 15%)	80,000
Totalling	£600,000

12. The Corporation of Glasgow and the Burgh of Bishopbriggs commissioned a report from consultants William Gillespie & Partners. Following the comments made on their 1971 reports, the consultants have prepared a further report, the conclusions of which will be referred to later in this report.

13. In the new Cumbernauld and Kilsyth District, the Strathkelvin Canal Park Group has made a thorough study of that stretch of the canal which passes through their area and their plan for a Linear Park proposes:—

- (a) A cleaning-up and landscaping of the canal basin, towpath and environs, including the face-lifting of a number of derelict buildings adjacent to the canal.
- (b) A new footpath along the southern edge with a footbridge near the Kelvinhead Reservoir.
- (c) Suitably-placed car parks, picnic areas and canal-side inns.
- (d) Launching Ramps to provide access for boats.
- (e) The Park to be linked to the historic Antonine Wall Walkway.

It is understood that the Countryside Commission for Scotland already have provided some grant aid for part of this enterprising project.

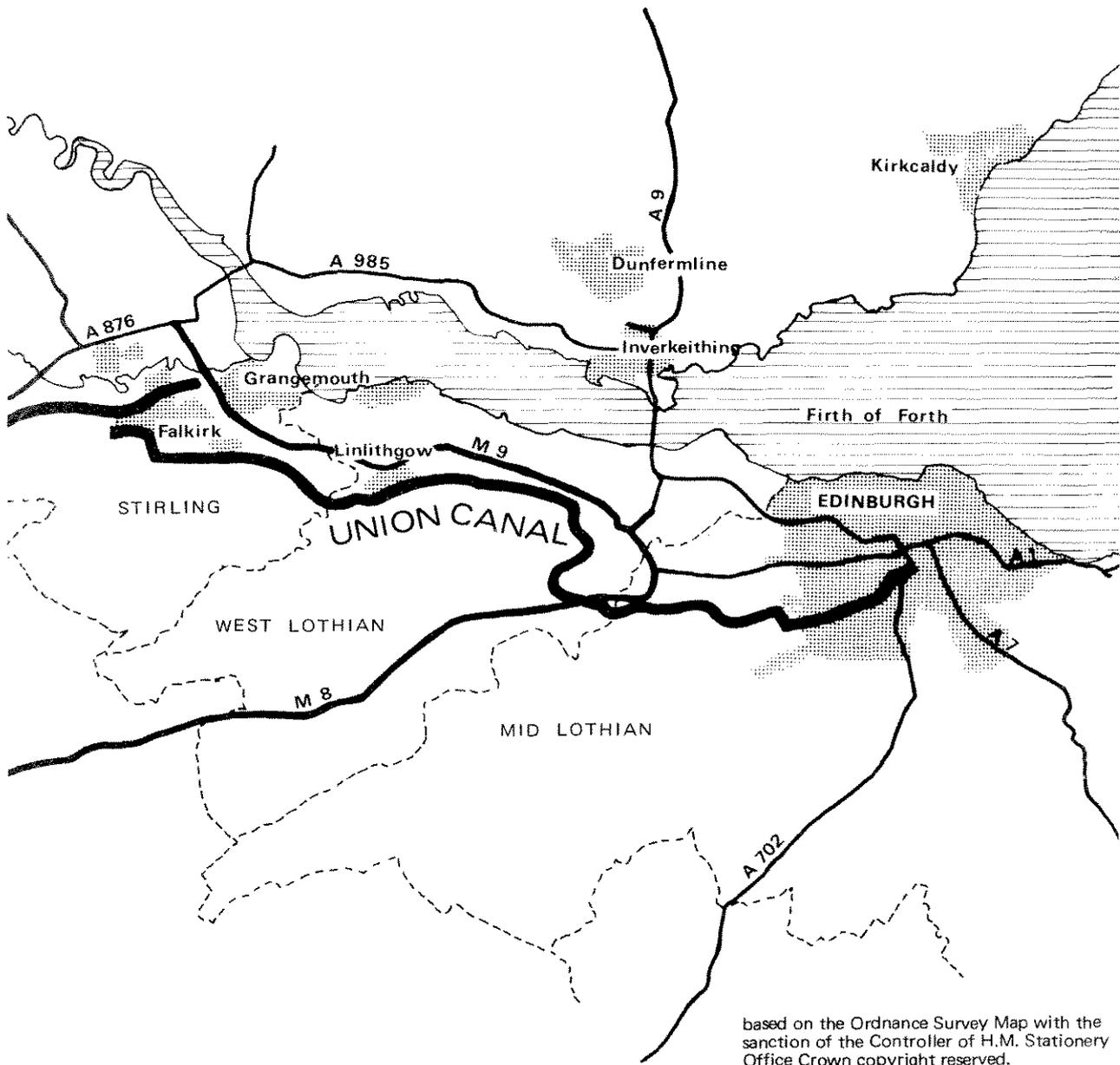
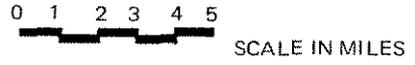
14. At Falkirk, the Local Authority have used the waterway to create an attractive and imaginative Linear Park.

15. The Scottish Inland Waterways Association, who are most anxious to see the Canal re-opened, have put forward proposals to secure the re-opening from Falkirk to Grangemouth. They suggest that a new short cut should be made from the closure east of Falkirk to the River Carron further upstream than the original basin. This in effect would bypass the blockages between Falkirk and Grangemouth. At this stage it may be pertinent to add that Members of the Council studied this proposal on the ground. It did appear to them that there could be considerable navigational difficulties on the river. There are three bridges, and the tidal height between the bed of the river and the top of the arch on one of them is only 15 feet, and the river virtually dries out at low water. Thus the depth of water needed to float a sea going craft would not leave all that much of the 15 feet available for headroom above the water-line, particularly in a sea going keeled yacht. It will need a detailed technical feasibility study by qualified experts, covering the effects of the tides, the depth of navigation water, and the headroom at high and low water at these Carron bridges, before a considered opinion can be given.

16. In addition to the obstacles listed in the appendices to this report the Council particularly noted:—

- (a) The quality of water and general standard of these remainder Canals in comparison with some of the Cruising waterways within some of the larger English cities.
- (b) The only major pollution problem seen, was on the Glasgow branch.
- (c) The almost soul destroying problem of vandalism.
- (d) The absence of boats on the canal itself.
- (e) The potential of the 16 miles lock free waters of the summit pound.
- (f) The commercial potential of the Bowling Basin.
- (g) The existing potential of parts of the system for daily cruising, restaurant boats, day trips both with an educational background and for old people, angling, canoeing, walking and rambling, nature study and although not perhaps permitted at the present time, riding and pony trekking along the banks.
- (h) That the waterway provides good coarse fishing.
- (i) The present piecemeal and local approach to the subject by individual Local Authorities.
- (j) The difference between the English canal system and this part of the Scottish system. The English system is linked to provide many hundreds of miles of continuous cruising, and offers opportunities for holidays for craft with living accommodation. The use of the Forth and Clyde, and the Union, for pleasure boating takes on a totally different aspect. The maximum journey would be about 30 miles on each canal, and if the link were to become a reality, a journey of 55 to 60 miles. If moorings are needed, vandal-proof marinas are required. If boats are to be given the chance to use the canal on any scale launching ramps must be provided.

LOCATION MAP UNION CANAL



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THE UNION CANAL

17. The construction of the Union Canal between near the City of Edinburgh and the Forth and Clyde Canal near Falkirk was authorised by an Act of Parliament dated 27th June, 1817. The construction was commenced in Edinburgh in March, 1818.
18. The canal was opened in May 1822. It extended from near Lothian Road, Edinburgh to Lock Sixteen on the Forth and Clyde Canal near Falkirk, a distance of 31½ miles. A 570 yard long extension to the canal was constructed at Port Maxwell near the top of the locks in 1823. The canal rose from the Forth and Clyde Canal at Falkirk via 11 locks to a height of 242 feet above sea level, and was thereafter level to Edinburgh.
19. The maximum depth of this waterway is 5 feet in the main (although the October 1972 survey revealed 6¼ feet depth to the hard bed in isolated places). Silt depths vary from a few inches to 3 feet. The canal was constructed with an average top width of channel of 37 feet and a bottom width of about 20 feet. The maximum size of vessels using the canal was 69 feet by 12 feet 6 inches, with a draught of 5 feet approx.
20. The Port Hopetown and Port Hamilton basins in Edinburgh were abandoned in 1921 and commercial traffic ceased with the infilling of the locks at Falkirk and Port Downie in 1933. The canal was closed to navigation in 1965.
21. The original section of the canal at its eastern extremity, between Semple Street and Fountain Bridge in Edinburgh, a distance of approx. 300 yards, has been eliminated. A further section of approximately 1 mile in length has been piped and infilled at Wester Hailes. This is four miles from the eastern extremity of the canal.
22. In the 30 miles of the canal, many structures are listed as of "architectural and historic" importance. Some are of very high quality, set in picturesque surroundings. The Council noted that industrial archaeology, which places a high value on the Union Canal, has a virtually complete museum exhibit of many varying types of structure from the Industrial Revolution period. It is understood that the Universities of Edinburgh, Strathclyde and Stirling each teach this subject.
23. The Council were informed that the Union Canal provides good coarse fishing and although not so noteworthy as in the Forth and Clyde Canal, the Union Canal supports Pike, Perch, Roach, Brown Trout and the Leather Carp. The latter is known only in the Union Canal in Scotland. Of all these, the Pike is reported to be the most numerous.
24. The Council were also informed that considerable use is made of the canal by boat clubs with over 250 members in total, in addition to schools and youth organisations. The boats used are racing craft, (fours, pairs and sculls), canoes and kayaks. The length most used is between Harrison Road Bridge, Edinburgh and Ratho, a distance of almost 7 miles. To a lesser extent the canal is also used between Ratho and Broxburn and between Philipstoun and Linlithgow, but there is increasing interest in the Linlithgow area.
25. In summary, the canal is on one level with a towpath, and the existing interruptions are insufficient to destroy its unified character and potential for:—
- (a) Daily cruising.
 - (b) Walking.
 - (c) Educational study, both natural and educational.
 - (d) Restaurant boats.
 - (e) Angling.
 - (f) Rowing and Canoeing.
26. A list of obstructions to the Union Canal is set out in Appendix C to this report.

FINDINGS

27. The Council noted the complete uncertainty as to what should be the future of this trans-Scottish Lowlands Waterways system. It is clear that there is now a wide feeling of unease at the premature decision in 1962 to close the Forth and Clyde Canal to through navigation. This view is shared by the Council. It is important, therefore, that a decision must be made once and for all, with the following as some of the options:—

1. Re-opening of the Forth and Clyde Canal, to various possible standards of navigation.
2. Re-opening of the Union Canal.
3. Linking of the Union Canal to the Forth and Clyde.
4. Continue the present policy of a Remainder Waterway with emphasis on local recreation and amenity.

28. This need for such a decision is clearly set out in the following extract from the 1974 Gillespie Report on the Forth and Clyde Canal within Glasgow and Bishopbriggs.

“Design solutions for the treatment of the canal corridor within Glasgow and Bishopbriggs should depend upon clear policy decisions with regard to the future use of the canal as a whole. The main options are clear and amount to a choice as to whether the canal is to function again as a navigable channel or not. A whole range of important decisions rest upon the determination of a policy — not only design solutions for the water channel itself but also decisions regarding the design of roads and bridges crossing and adjacent to the canal, of land use and layout of areas adjacent to the canal, of the open space structure in large sectors of the city area, to name but a few.

It is most doubtful whether a policy decision either way would result in the immediate and comprehensive redevelopment or rehabilitation of the canal corridor but this does not obviate the need for such a policy to allow other decisions to be made which will not conflict with the future use of the canal and pre-empt options for its future development.

We have been most impressed by the arguments put forward that no irreversible measures be taken meantime, and by the remarkable results in recreational terms of creating cruiseways on canals in England and Wales. Furthermore, we have formed the strong view that those canals which have been rendered un-navigable are less functional, less visually attractive, and less acceptable as a feature in both urban and rural environments, than those where water based activity has been encouraged. Whereas we do not regard the potential of the Forth and Clyde Canal as being similar to that of canals in the southern system for the reasons given in section 3.4* we are now of the opinion that our earlier reports were written from too parochial a standpoint and that no work, such as infilling or low bridging, should be carried out which will affect the possible future development of the canal as a navigable waterway.”

29. The Council would concur with these views, but would add that an un-navigable and un-used canal is by far the most dangerous from a child safety point of view.

30. Both these canals are Remainder Waterways and within this context so the gradual erosion of their potential as recreation waterways — so effectively carried out — will continue until eventually they fall into an open space pattern as a series of small individual disconnected lengths of water or ponds. It was therefore quite clear to members that the first matter which must be resolved is the future potential of these waterways for not only recreation, leisure and tourism, but also for commercial use.

31. The Members felt that recent events — joining the European Economic Community, the development of BACAT and North Sea Oil — might well have created a very different commercial potential, which should be taken into account.

32. A question which also has been put to the Council concerned the possible advantage to the fishing industry to move between the Forth and the Clyde. The Council were not able to form any view on this issue. However, the point was made that in an area where international agreements are being reached on the fishing industry, a situation could arise in the future whereby a speedy communication link from east to west could be of importance to the nation and in such case, irrespective of the other factors mentioned above, an investment of many million pounds could be well spent. Council are not qualified to comment on this possibility but would ask that this aspect be examined with the appropriate authorities.

*Note. The reasons are similar to those expressed earlier in this report — Para. 16J.

33. The rapid growth of yachting may offer opportunities for yachtsmen on the North-East Coast of England and the East Coast of Scotland to move direct to the world famous yachting and recreation tourist centres of the Clyde. Visiting yachts from Europe, and in particular North-East Germany in the Heligoland area cross to the Forth, and enquiries have been made as to whether easy passage in the course of time is likely between the Forth and the Clyde.

34. At present, the main Sailing centre in Scotland, especially for competitive events, is the Firth of Clyde, and yachts going there from the East are either transported overland or make the lengthy journey up the East Coast, where dangerous conditions often prevail, to Inverness, and then through the Caledonian and Crinan Canals. The latter method is dangerous and involves usually a week and a half's journey and considerable expenditure in canal dues, living expenses, fuel etc. The former is also costly and due to the problems associated with overland transport of heavy yachts, damage often occurs. The result of these problems is that comparatively few yachts travel from East to West, and virtually none from West to East, the latter being much to the detriment of any competitive events arranged or supported by East Coast clubs.

35. The Forth Yacht Club Association has suggested that through navigation be restored on the Forth and Clyde, but appreciate that they cannot expect to have unrestricted headroom as in pre-1963 days. Their suggested minimum requirements for a re-opened canal would be – Length 60 ft., beam 15 ft., draught 7 ft., headroom 14 ft., with simple facilities for stepping and unstepping masts at either end.

36. They also drew the Council's attention to the fact that over the past ten years, the growth in numbers of the larger type of yacht with living accommodation (as distinct from open boat sailors) has been considerable, and whilst exact statistics are not available, it is probable that the increase is about ten-fold.

37. In this latter connection, whether or not the case is made for coast to coast navigation, the Council feel it proper to point out that there can be no case for coast to coast restoration solely for use by inland navigation boats. Quite simply a "canal craft" would be in danger if it emerged from the canal at either end into open water. Similarly it is very unlikely that the number of yachts wishing to pass from coast to coast, could by themselves alone justify the cost of coast to coast restoration. A decision on the re-opening of the Forth and Clyde Canal therefore must be made on an analysis of all the many elements covered in this report.

38. However, the interest in this waterway system is reflected not only in the press but also by the number of capable studies, under both the aegis of the British Waterways Board, and by Consultants, Planning Authorities, Voluntary Groups and Universities.

39. Before these two Canal Systems are irretrievably broken up, therefore, the Council would urge a fresh look within the Scottish National and Regional context. Many changes have taken place since 1962. There is a need to re-examine the economic and commercial potential, the potential for new employment created by the growing leisure industry, and the importance of providing for a wide range of new recreation outlets for all age groups. On economic grounds alone, to use the assets of this waterways system to the full seems sensible.

40. Members of the Council would point out that these two Canals cannot be judged in the simple terms of an English Remainder or Cruising Waterway.

41. Their apparent potential is such that the Council would recommend that: –

"A DETAILED SCOTTISH LOWLANDS WATERWAYS STUDY SHOULD BE CARRIED OUT IMMEDIATELY".

It is important that this essential Regional Study should:

- (a) enable a decision to be made as to whether the re-opening of one or more of these canals is feasible and desirable,
- (b) take into account the potential for the creation of new jobs, new commercial opportunity, water supply, recreation and for tourism,
- (c) take into account the potential for the improvement of the environment particularly within Glasgow and Clydebank,
- (d) state clearly the cost of re-opening the waterway network (this must include a number of alternative navigational options, e.g., 8 ft., 14 ft., and 30 ft. headroom),
- (e) make clear and feasible action recommendations for "Safety".

42. It also must be emphasised that a key element which must be built into the Study is one of "cost benefit" covering not only all the aspects covered in this Report, but the new opportunities which no doubt will emerge from the Study.

43. The Council recognise that the cost to re-open these waterways will be high. Irrespective of which course of action is decided from the findings of the Study, it will need to include a phased action programme, which can be steadily carried out over a number of years.

44. The next question which arises therefore is "who would be responsible for this new Scottish Lowlands Waterways Study?"

45. The Local Government reform which has created larger authorities, has emphasised the need for bodies to work closer together in greater partnership in the future than has been the case in the past.

46. The new local authorities therefore might be invited to set up a joint team. This is one alternative. However with the heavy demands of reorganisation on their technical resources, and in view of the wide ranging and complex issues involved, this will not be practical in the immediate future.

47. The Council recommend therefore:

"THAT AN INDEPENDENT STUDY TEAM BE SET UP – TO RECEIVE REPRESENTATIONS FROM ALL – BUT ADVISED BY A STEERING COMMITTEE OF REPRESENTATIVES OF THE INTERESTED STATUTORY AUTHORITIES."

48. The Council are of the opinion also, that pending the result of this Scottish Lowlands Study and the decisions which will flow from it:

"NOTHING FURTHER SHOULD BE DONE OR PERMITTED TO BE DONE WHICH WOULD BE CONTRARY TO COAST TO COAST RESTORATION."

49. Whilst awaiting the findings of the Study it is important that the wide recreation potential outlined in this report continue to be developed.

50. An example of how this could be effective is reflected in the boating potential. The existing boating lengths of the Forth and Clyde and of the Union Canals could and should be put to good use and not be wasted. They are anyway viable for inland boating purposes already and should remain so permanently. There are two lengths each side of Kirkintilloch which with but little work could be made available for canal cruising by craft up to the dimensions of English narrow boats. It would not be altogether impossible to link the two together and make one substantial length. Thus these two lengths, and the lengths of the Union Canal such as those between Edinburgh and Ratho, Ratho and Broxburn and between Philipstoun and Linlithgow, could be made available at a reduced licence fee and with launching-ramp facilities provided.

51. The Council therefore recommend:

"THAT THE SPECIFIC BOATING LENGTHS MENTIONED ABOVE, AND ANY OTHER LENGTHS FOR WHICH THERE IS OR MAY BE A SIMILAR DEMAND, BE MADE AVAILABLE NOW AT A REDUCED LICENCE FEE FOR PLEASURE BOATING, AND WITH LAUNCHING-RAMP FACILITIES PROVIDED BY THE BOARD, – POSSIBLY IN CONJUNCTION WITH MUNICIPAL AND VOLUNTARY BODIES."

52. In conclusion, the Council would emphasise their belief that these waterways have wide potential which if imaginatively developed could have a lasting benefit to the large number of people who live in this important part of Scotland.

BRITISH WATERWAYS BOARD

APPENDIX A

NOTES ON FORTH AND CLYDE CANAL

NAVIGATIONAL OBSTRUCTIONS – JUNE 1974

- | | |
|-----------------------|---|
| 1. GRANGEMOUTH INFILL | The channel has been extinguished and while part of the route is still available it has been crossed by the Edinburgh/Stirling Motorway (M9), the Cruden Bay/Grangemouth oil pipeline, and by works in the Dock area. |
| 3. LOCK 4 | The local authority wish to have a low level crossing below Lock 4. They have asked for nil clearance. |
| 5. BAINSFORD | Ground all at towpath level. Area built up. Canal could only be opened by a moveable bridge. The road is a very busy through route. |
| 8. LOCK 8 | Fixed road bridge over lock chamber (Merers Bridge). There is no headroom and the bridge carries heavy works traffic. A moveable bridge would be required. |
| 13. CAMELON | Similar comments to Bainsford. (Item No. 5) |
| 18. LOCK 16 | A simple span has been set across the lock chamber replacing an old bascule bridge at the same location. A small craft could lock at one side of the bridge. |
| 19. BONNYBRIDGE | An Armco Culvert replaced the original steel swing bridge. Centre headroom at today's water level is 6'2" with a water level width of 15'1". There is a 4 ft. headroom over a 6 ft. width. The crossing is at a point where the towpath bank is set high over the town. Any improved headroom would need a moveable bridge. |
| 24. A.80. CASTLECARY | Glasgow/Stirling expressway being upgraded to Motorway. Twin pipes have little soffit clearance below carriageway level. There is a pedestrian underpass. The road approaches could be ramped to give any reasonable clearance (not for high masts) but the cost would be heavy. |
| 25. WYDNFORD | Lock No. 20 – Same comment as for Lock 16 (Item No.18). |
| 26. ? NEW MOTORWAY | A crossing of the proposed M.80 is expected somewhere in the Craigmarnloch area. B.W.B. has asked for "Construction & Use" clearance (about 20'0") over towpath level, in view of lack of maintenance access. |

28. AUCHINSTARRY A steel swing bridge which could be restored.
29. TWECHAR As Auchinstarry. (Item No. 28)
30. LOCH LOMOND WATER PIPE A 54" pipe crosses at about 4'3" over present water level. It could be lifted at a cost.
31. GAS PIPE —
32. HILLHEAD As Auchinstarry. (Item No. 28).
33. TOWNHEAD Pipes could be lifted and replaced by large Armco culverts, at a cost.
34. GLASGOW ROAD. A.803. An Armco pipe has been authorised, giving a maximum centre headroom of 8'0" with a water level width of 13'9". There is a 10'0" width at 6'0" headroom. The job is stopped by the "freeze" on expenditure, meantime. The existing road route is dog-legged over the Canal.
35. HUNGRYSIDE BRIDGE As Auchinstarry (Item No. 28), but headroom is near to the 12 ft. mark.
36. CADDER A new simple span concrete bridge on old abutments. Difficult to lift due to adjacent roads and properties. Serves local church, a few houses and a thriving golf club.
37. BALMUILDY ROAD A concrete span carrying a busy minor road. Ramping impracticable but not impossible — the new Sports Centre is involved. Would really need to be made moveable.
39. LOCK 21 FOOTBRIDGE Footbridge set on lock coping below bottom gates at high level.
44. CLEVEDEN ROAD Armco culvert could be increased in size, but exact limit not determined.
48. NETHERTON As a light accommodation bridge this could be restored as a bascule.
52. CLOBERHILL PIPING A complex problem — 2 locks to be replaced (perhaps by one single lift) and Great Western Road (the main road from Glasgow to the North West) is to be crossed. There is some headroom available — some extra ramping might be possible.
53. BARD AVENUE Could be restored as a light opening bridge or a fixed ramped approach constructed.
56. GARSCADDEN A footbridge at present sits on the copings. It would allow a headroom of about 3'11" at top water level but about 10 ft. for a craft of about 50 ft. length overall. The bridge could be re-sited below the bottom gate to give 10 ft. headroom for full length craft. Could also be lifted.
57. DUNTREATH AVENUE Reinstate one lock and open up the channel under the road with a large Armco or similar.

58. **LINVALLE** Existing 4'6" headroom but has to be reconstructed for secondary access to Linvale Estate. Box culvert agreed at 4'11" headroom – depth 4'11" – width 12'8".
59. **NEW DISTRIBUTOR** Agreed with Clydebank as a box culvert 4'11" headroom 4'11" depth and 12'8" width.
- 59a. **TOWN CENTRE DEVELOPMENT** Several footbridges and a possible short extension to the Kilbowie pipes under discussion.
60. **KILBOWIE ROAD PIPES** Due to ground levels cannot ramp. Would need moveable bridge. This is on the route of the Clydeside Expressway extension.
61. **DALMUIR PIPES** Busy East/West route from Clydebank. All at towpath level. Cannot reasonably ramp. Would need moveable bridge to replace pipes.
62. **FARM BRIDGE** Similar to Netherton. (Item No. 48).
63. **ERSKINE** Steel swing bridge. Similar notes as Auchinstarry (Item No. 28), but note oil installations (Civil and Military) at river side of Canal.
65. **FERRYDYKE** As Netherton (Item No. 48).

GENERALLY:

- (1) At many bridges service pipes have been strapped to the bridge beams or spanned alongside. They could easily be altered but would of course add to the cost of restoration.
- (2) No comments where more than 12'0" headroom now exists.

BRITISH WATERWAYS BOARD

APPENDIX B

FORTH AND CLYDE CANAL — OBSTRUCTIONS TO LEVEL CLEAR PASSAGE

— JUNE 1974

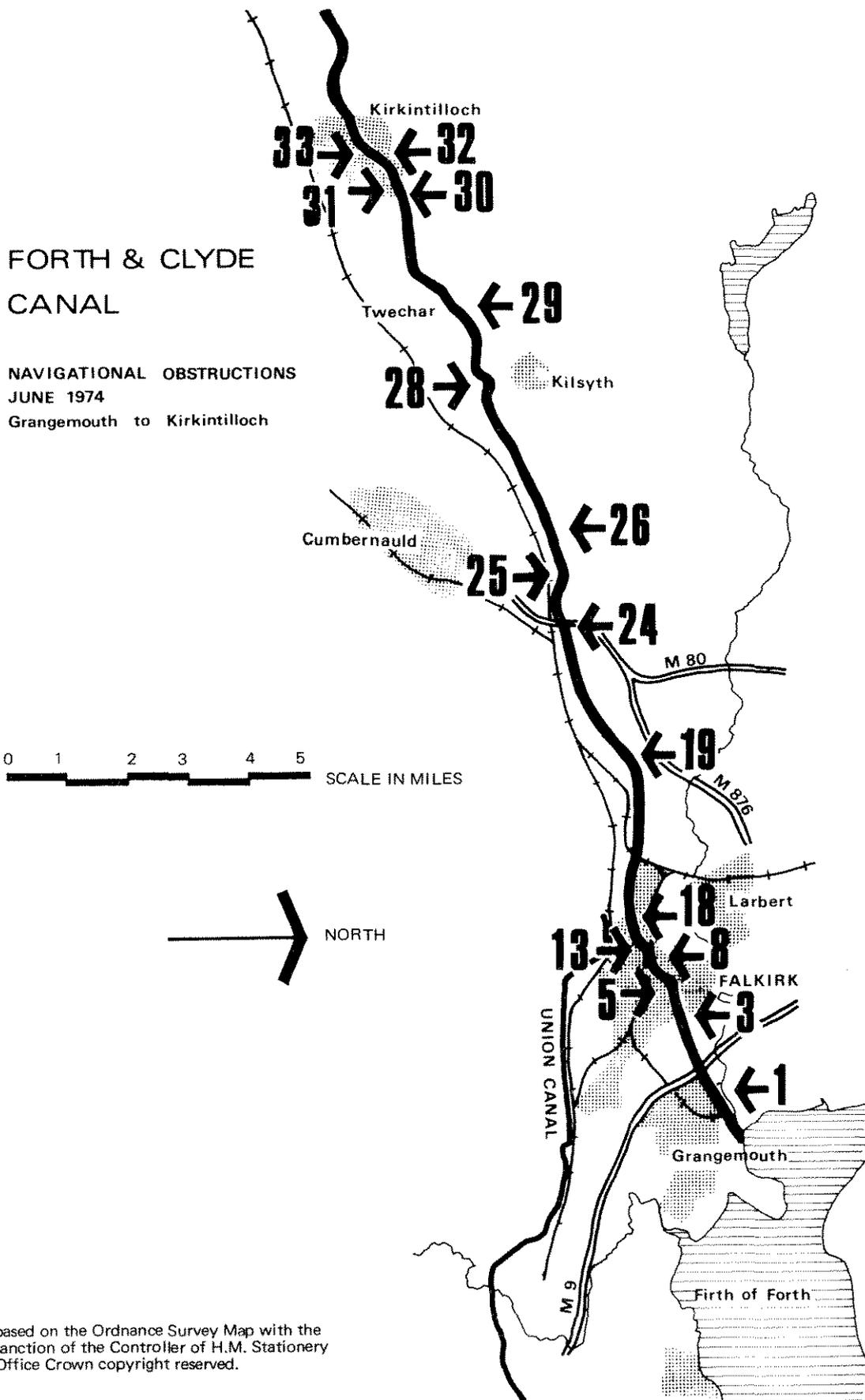
ITEM No.	DISTANCE		LOCK No.	ROAD BRIDGE Name or Location	OTHER CROSSING Name, Type or Location	HEADROOM Ft. Ins.	NOTES
	Miles	Yards					
1	1	380			INFILL. Lock 3 to River Carron.		
2	1	650			Railway Bridge	14 — 0	
3	1	1200	No. 4				
4	2	220	No. 5				
5	2	800		Bainsford INFILL			2 x 42" pipes.
6	2	836	No. 6				
7	2	1573	No. 7				
8	2	1730	No. 8	Merers Bridge		Minimal	Fixed bridge set on Lock coping.
9	3	110			Railway Bridge	7 — 0	
10	3	129	No. 9				
11	3	309	No. 10				
12	3	421	No. 11				
13	3	520		Camelon INFILL			2 x 42" pipes.
14	3	676	No. 12				
15	3	790	No. 13				
16	3	902	No. 14				
17	3	1097	No. 15				
18	3	1254	No. 16	Lock 16			Fixed bridge set on lock coping.
19	6	1360		Bonnybridge		4 — 7	Armco Culvert.
20	8	60	No. 17				
21	8	110	No. 18				
22	8	1600	No. 19				
23	9	53		Castlecary			
24	9	250		A.80 Stirling/ Glasgow INFILL		13 — 0	2 x 72" pipes
25	9	1730	No. 20	Wyndford			Fixed bridge set on lock coping.
26		?		? New Motorway			
27	12	900		Craigmarloch		7 — 0	
28	14	1360		Auchinstarry		4 — 3	
29	15	694		Twechar		5 — 0	
30 approx.	17	950			54" dia. pipe bridge.	4 —	Loch Lomond Water Supply.

ITEM No.	DISTANCE Miles	Yards	LOCK No.	ROAD BRIDGE Name or Location	OTHER CROSSING Name, Type or Location	HEADROOM Ft. Ins.	NOTES
31	17	1630			54" dia. pipe		Water.
Approx.							
32	18	900		HiHhead Bridge		4 - 3	
33	18	1694		Townhead INFILL			2 x 42" pipes.
34	20	814		Glasgow Road		<u>11 - 3</u>	
35	21	504		Hungryside		<u>11 - 6</u>	
36	22	86		Cadder		<u>9 - 10</u>	
37	22	1740		Balmuilty Road		<u>6 - 2</u>	
38	24	1520		Lambhill		<u>13 - 1</u>	
Approx.	25	1560		GLASGOW BRANCH ENTERS MAIN LINE			
39	26	646	No. 21		Footbridge on coping below bottom gates.		Maryhill Top
40	26	726	No. 22				
41	26	795	No. 23				
42	26	860	No. 24				
43	26	931	No. 25				
44	26	1630		Cleveden Road		6 - 0	Armco Culvert.
45	27	568	No. 26				
46	27	782	No. 27				
47	27	894		Temple		12 - 4	
48	27	1474		Netherton		4 - 0	
49	28	1395	No. 28				
50	28	1510	No. 29				
51	28	1637	No. 30				
52	29	620		Great Western Road	INFILL. "Clobberhill" (Includes locks 31 & 32)		2 x 18" pipes.
		Approx.					
53	29	1040		Bard Avenue		3 - 6	
54	29	1370	No. 33				
55	29	1600	No. 34				
56	29	1716	No. 35		Garscadden Foot-bridge.		Fixed bridge set on lock coping.
57	30	27		Duntreath Avenue	INFILL (includes lock 36)		2 x 24" pipes.
58	30	840		Linnvale Foot-bridge.		4 - 6	
59	31	330		New Distributor (Proposed)			See notes.
60	31	850		Kilbowie Road INFILL			2 x 42" pipes.
61	32	814		Dalmuir INFILL			2 x 42" pipes.
62	32	1480		Farm Bridge		3 - 0	
63	33	1630		Erskine		<u>2 - 9</u>	

APPENDIX B (Contd.)

ITEM No.	DISTANCE		LOCK No.	ROAD BRIDGE Name or Location	OTHER CROSSING Name, Type or Location	HEADROOM		NOTES
	Miles	Yards				Ft.	Ins.	
64	34	88	No. 37	(Erskine High Level Bridge over)				
65	34	990		Ferrydyke		4	0	
66	35	130	No. 38	(In working order)				
67	35	225		Bowling Bascule (In working Order)		11	4	(Can vary).
68	35	270			Railway (disused)	20	0	(Can vary).
				(No. 39) (Old Sea Lock (Disused)).				
69	35	442	No. 40	(Sea Lock in working order)				

- NOTE:**
- (1) Headrooms given for guidance only and should not be taken as specific. Where they have been checked recently they are underlined.
 - (2) All distances from old entrance ex Carron at Grangemouth.



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BRITISH WATERWAYS BOARD**APPENDIX C****NOTES ON UNION CANAL****NAVIGATIONAL OBSTRUCTIONS — JUNE 1974****1. FALKIRK — Link to F. & C.**

The lock flight was infilled circa 1933 and no ready route now exists to reconnect.

2. ASSCHEM CHEMICALS BRIDGE, REDDING.

A steel swing bridge, with 1'3" clearance could be restored to opening order.

3. LATHALLAN/BOWHOUSE ROAD PIPING

On the face of it there is no reason, cost apart, why the road could not be re-graded to give headroom for a canal underpass, in place of the twin 42" pipes which now exist.

4. VELLORE ROAD (Muiravonside Bridge). (Bridge No. 51)

An Armco Culvert gives a headroom of 7'4" with a water width of 13'9", coupled with 6'0" headroom over a 8'2" width. It could be re-graded. Water depth is 2'4".

5. PRESTON ROAD, LINLITHGOW (Bridge No. 45)

Twin 42" pipes could be replaced by an off centre Armco culvert to give some headroom without much regrading.

6. GREENDYKES ROAD, BROXBURN. (Bridge No. 27)

Twin 42" pipes could not readily be replaced by other than a moveable bridge, due to local constraints.

7. M.8 CROSSING

Regrading of the Motorway is possible to give headroom in place of the twin 42" pipes. It is just possible to get 4 ft. headroom over water (with a separate pedestrian underpass) without regrading using an Armco U.36 with an R.C. cover slab. But with a length of 160 ft. must be regarded as quite inadequate.

8. WESTER HAILES PIPING

About 1.1/8 miles of 2 x 27" pipes (with automatic pumping) could be by-passed, possibly by locking down below new roads and locking up again, with pumped level control.

9. KINGSKNOWE ROAD BRIDGE (Bridge No. 5)

Twin 42" pipes would need a moveable bridge as replacement due to local constraints.

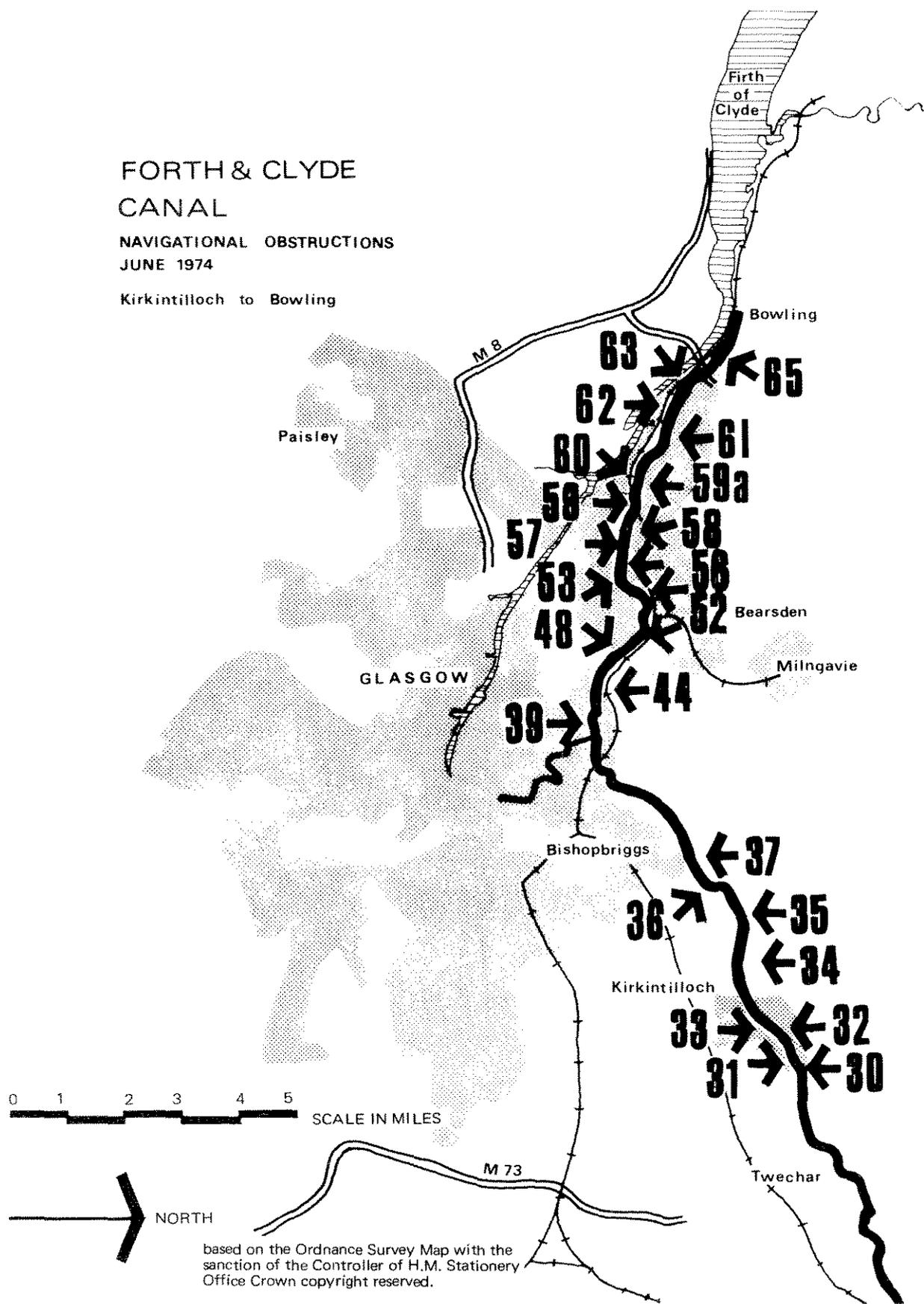
10. LEAMINGTON ROAD BRIDGE

A steel lifting bridge which could be restored to working order.

FORTH & CLYDE CANAL

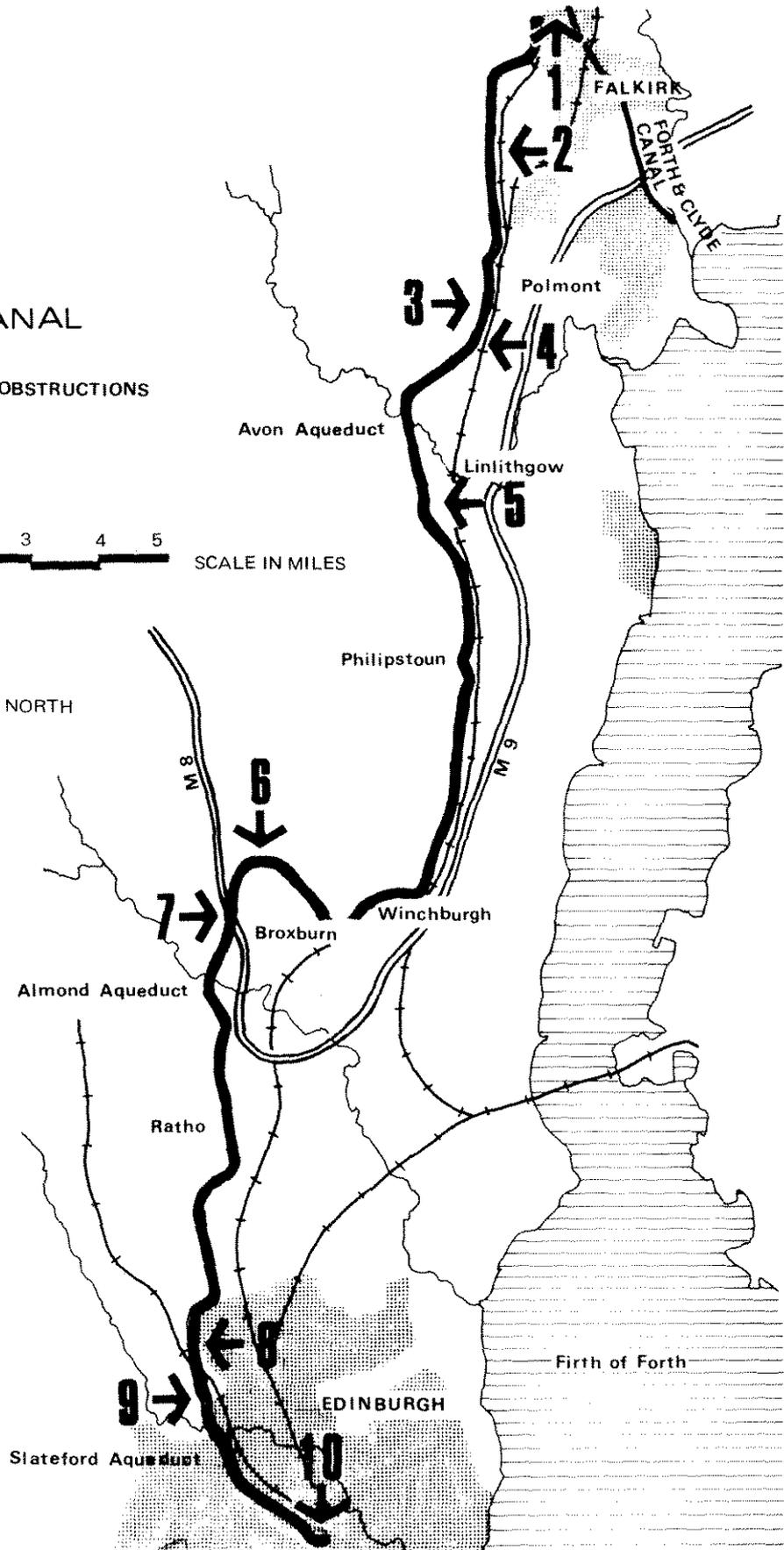
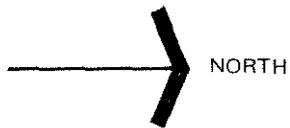
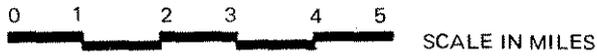
NAVIGATIONAL OBSTRUCTIONS
JUNE 1974

Kirkintilloch to Bowling



UNION CANAL

NAVIGATIONAL OBSTRUCTIONS
JUNE 1974



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The Advisory Council is a statutory body established under Section 110 of the Transport Act 1968 whose members are appointed by the Secretary of State for the Environment from all fields of waterway amenity and recreational interest.

The Council are required to advise the Secretary of State for the Environment and the British Waterways Board on any proposal to add to or reduce the cruising waterways; to consider and, where thought desirable, to make recommendations to the Board or the Secretary of State with respect to any other matter (a) affecting the use or development for amenity or recreational purposes of the cruising waterways, or (b) with respect to the provision for those purposes of services or facilities in connection with those waterways or the commercial waterways.