DEPARTMENT OF TRANSPORT
2 MARSHAM STREET LONDON SW1P 3EB

Andrew Turnbull Esq
Private Secretary
10 Downing Street
London
SW1

12 March 1984

Dear Andrew

CHANNEL FIXED LINK - MR IAN MCGREGOR'S MEETING WITH THE PRIME MINISTER

I attach the briefing you requested for this meeting - which I understand will now be on Wednesday 14 March.

The briefing refers to the long delayed banks' report. Within the next 10 days my Secretary of State will be putting to colleagues his proposals for handling the report when it arrives.

I am copying this letter and brief to the Private Secretaries to the Chancellor of the Exchequer and the Foreign Secretary.

Yours sincerely

H C S Derwent

H C S DERWENT
Private Secretary

C O N F I D E N T I A L

CHANNEL FIXED LINK (CFL)

MR MACGREGOR's MEETING WITH THE PRIME MINISTER TO DISCUSS THE EUROROUTE PROJECT

1. Mr MacGregor is to meet the Prime Minister on 14 March. There was a previous meeting on this subject on 17 November 1981. A copy of a letter recording the discussion is at Annex A.

2. Mr MacGregor will no doubt want to urge on the Prime Minister the need for a fixed link across the Channel allowing cars and lorries to drive between the UK and France, adding that his "EuroRoute" concept caters also for through rail passenger and freight traffic. His scheme is described in EuroRoute's own brochure at Annex B.

3. He is likely to say that the project could be started quickly and finished quickly, that it is based on proved technology, and that it would cause no navigational problems in the Channel. These points are covered in Annex C which summarises the various forms of fixed link proposed. So is the question of cost.

4. The Prime Minister will recall that "E" Committee in May 1982, under her chairmanship, decided that the UK interest in any CFL would have to be financed entirely from market sources without any government guarantee against commercial or technical risks. When she met the French Prime Minister at the meeting of the Franco/British Council in Edinburgh soon afterwards she expressed a strong preference for a "drive through" form of link while agreeing that a group of British and French banks (Midland, Nat West, Credit Lyonnais, Banque Nationale de Paris, Banque Indo-Suez) should study and report to the two Governments on whether any or all of the various schemes could be financed by the market on these terms.

5. The report, long delayed, is expected to be delivered about the end of March. Its content has leaked. Mr MacGregor will know that it is likely to conclude that the only scheme which could attract market finance is that involving twin bored tunnels providing a shuttle service for cars and lorries. (This scheme is described and illustrated in the brochure at Annex D issued by 5 construction companies who have just merged into a single promoting group.) Even that, in the opinion of the banking group, would

require some element of government guarantee, Mr MacGregor's EuroRoute scheme is considered to be beyond the capacity of the market because of its cost and the technical uncertainties associated with it.

SUGGESTED LINE TO TAKE

6. The Prime Minister may want to say that she is interested in but certainly not committed to the idea of a fixed link. She will no doubt want to stress the "no public money, no commercial guarantee" condition. She may want to ask Mr MacGregor where, given the leaked information from the Banking Group report, he sees the money coming from, what he sees as the role of the EuroRoute Group (see Annex B for its composition) and who he sees as the client commissioning the project, financing it and carrying it through construction into operation.

7. She may want to end on the note that she and Mr Ridley will want to see how international financial institutions and industry generally react once the Banking Group report is published.

8. She may also want to say that this of course cannot be exclusively a matter for the UK Government. There will have to be consultation with the French Government, but she knows that Mr Ridley would like to see how the market has reacted before he gets into discussion with his French colleague on the decision to be taken by the two Governments.

ANNEX C

BACKGROUND (TECHNICAL)

SCHEMES PROPOSED

1. Numerous schemes have been put forward for "fixed links" across the Channel. They fall into four main categories:

i. Tunnels bored through the chalk (the kind of scheme abandoned by the Labour Government in 1975) providing a shuttle service for cars and lorries, but catering also for through rail passenger and freight services. No one is now promoting the idea of a tunnel for through rail services only.

ii. Multiple span suspension bridges, with individual spans of 2-3 km (the biggest single span suspension bridge so far built is the Humber: 1.4 km).

iii. Immersed pre-fabricated tubes, incorporating a road and a railway. These pose enormous ventilation problems. No one is currently promoting such a scheme, but there is still some interest on the French side.

iv. A composite scheme, Mr MacGregor's concept, which involves vehicles driving out over viaducts to an artificial island, spiralling down to an immersed tube under the main shipping lanes, then up through another island and back onto a viaduct. There would be a railway in immersed tube throughout, linking up with the roadway in the central section.

TECHNICAL PROBLEMS

2. The technology of bored tunnels is well known. Surveys have shown that the chalk below the sea-bed is virtually ideal, with little risk of major faults being found. Work still has to be done to ensure that adequate ventilation can be achieved and overheating avoided. But these should be soluble at modest cost.

3. Multiple span suspension bridges, with individual spans of 2-3 km represent a great leap in technology. Lengthy and costly study would be necessary to affirm their technical feasibility.

4. Immersed tubes do not require a technological leap from a constructional point of view. The composite scheme would present fewer ventilation problems. But even that is a considerable extrapolation of what has already been done elsewhere (Mr MacGregor will cite the Chesapeake Bay Bridge/Tunnel). The fact is that there is no experience of dredging trenches (the size of a Marsham Street tower) at depths experienced in the Channel nor of laying units of 125 m long, weighing about 60,000 tonnes, in the midst of the kind of traffic experienced in the Channel.

NAVIGATIONAL PROBLEMS

5. Bored tunnels pose no navigational problems. There is no obstacle to shipping.

6. A bridge with multiple piers would pose a major hazard, both to the bridge and to shipping. Navigating a super-tanker through a 2 km span is not easy even in the best light and weather conditions.

7. The islands and ventilation shafts required for the composite scheme would create a similar hazard, though Mr MacGregor is likely to assert that the former would serve to re-inforce lane discipline in the Channel.

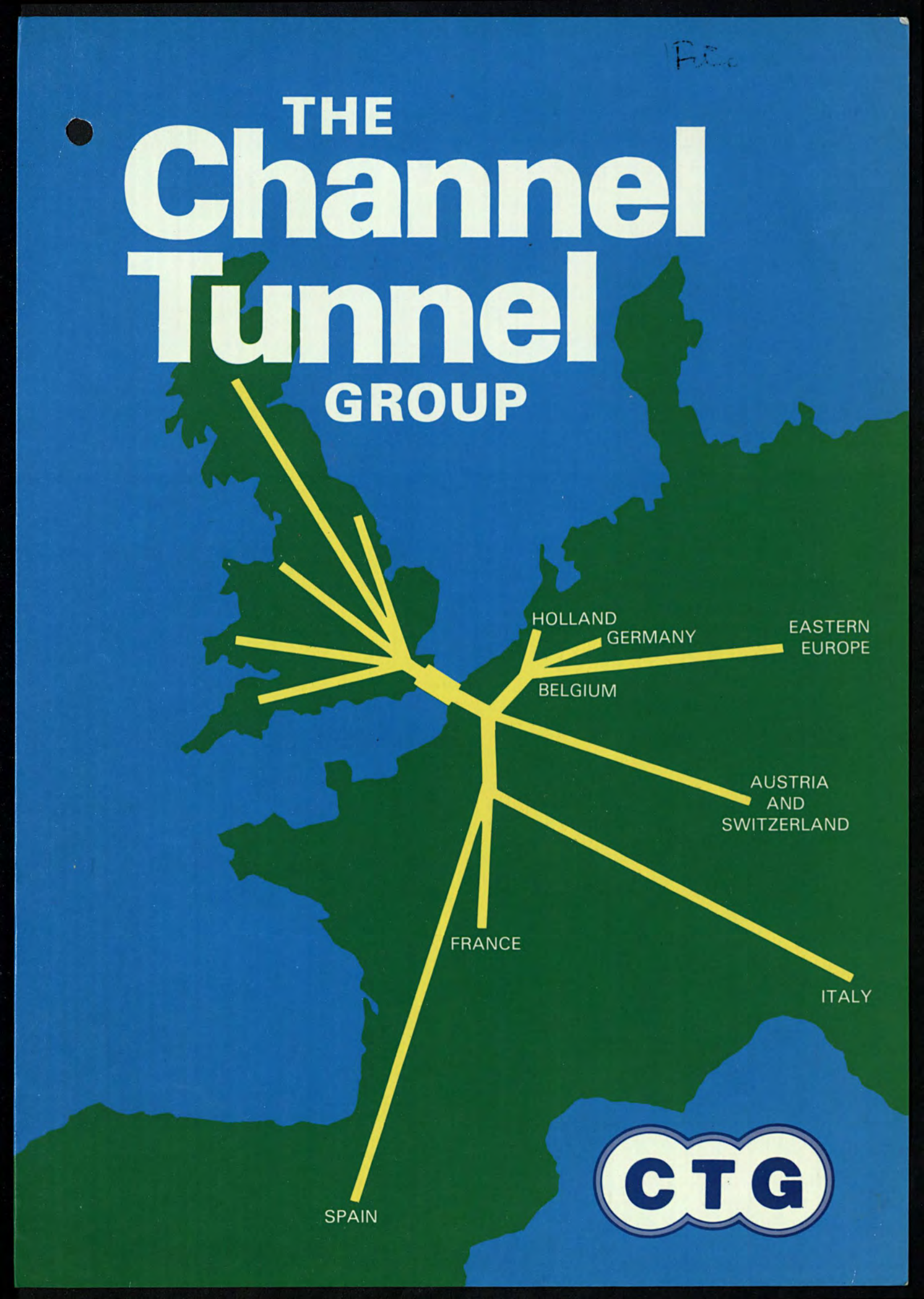
8. But the fact is that no one knows what effect the artificial islands in particular would have on currents in the Channel and whether they would result in any shifting of the large sand banks which already constitute an obstacle to navigation. EuroRoute recognise the need to study this by hydraulic modelling. This will take time and cost millions of pounds. Britain and France would have to satisfy themselves that safe passage could be ensured and would have to indicate to the International Maritime Organisation how this could be achieved.

COSTS

9. An official Anglo/French Working Group which reported in June 1982 estimated the cost of twin bored tunnels providing uninterrupted vehicle shuttle services and through rail services at under £2,000M. The probable cost of Mr MacGregor's scheme was put at around £5,000M (both January 1981 prices). Mr MacGregor is likely to assert that, as a result of further costing, taking into account

developments in techniques, the cost of his scheme is now lower than that at 1983 prices. He is likely to protest at what he considers is the false impression given by the Anglo/French Banking Group that, assuming inflation at 9% per annum and a real interest rate of 4%, the maximum outstanding loan incurred in financing the project could be as high as £54 billion.

THE Channel Tunnel GROUP



CTG

THE CHANNEL TUNNEL GROUP

comprising **Balfour Beatty**
Costain
Tarmac
Taylor Woodrow
Wimpey

Background

The Channel Tunnel Group has been formed by five leading British construction companies with a combined turnover of £4.3bn to promote the Channel Tunnel Project. The companies have previously studied, supported and promoted the bored Tunnel Project in three separate groups: Anglo Channel Tunnel Group (ACTG), European Channel Tunnel Group (ECTG) and Channel Tunnel Developments (1981) Ltd. (CTD 81).

This type of fixed link is the most technically feasible and financially viable. It will provide a very attractive cross-Channel service for both road and rail traffic with minimal environmental effect.

CTG companies have the proven technology, experience and resources to enable them, together with the financial institutions, to implement this project in partnership with French interests. The Project will require the political support of the British Government and the will to see this long overdue fixed link with Europe through to completion.

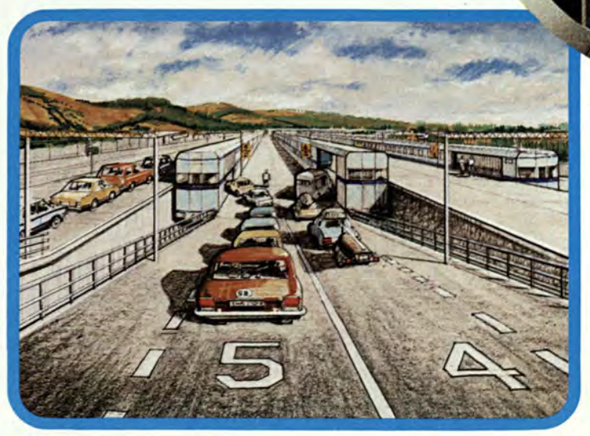
CTG

Benefits and advantages of a Channel Tunnel

- A fast, safe, reliable service connecting the UK with the Continental road and rail network, operating 365 days a year, totally unaffected by weather.
- It will co-exist with the sea-ferry services, providing an alternative competitive cross-Channel service.
- Ferry train shuttle services will take private cars, coaches and commercial vehicles across the Channel in 25 minutes.
- It will effect dramatic time reductions in the movement of exports both by road and rail. Direct access to the European market will be as close to UK industry and commerce as the nearest railway station.
- Through-passenger trains to Paris and Brussels will take about 4 hours, city-centre to city-centre, comparing very favourably with air travel.
- Construction will provide 250,000 man-years of employment shared between the UK and France.

The simple way to take your car across the Channel

Cars will arrive at the Cheriton Terminal and drive into special double-decked, air conditioned, brightly lit wagons, loading at several points along the train's length from high/low platforms and parking nose-to-tail. Drivers and passengers will either remain seated for the 25 minute journey time, or stretch their legs along the walkway beside their cars.



The Tunnel

The tunnel scheme comprises two 7m diameter running tunnels and a 4.5m diameter service tunnel, bored through the Lower Chalk approximately 40m below the sea bed.

The Channel Tunnel will add new dimensions of convenience, all weather reliability, speed and comfort to cross-Channel transportation. As a competitive element to the ferries on the short sea routes Dover/Calais/Boulogne, it also adds a land route to the present sea and air links with the Continent, thereby helping to preserve our trade routes and communications, should one of the other modes be interrupted by weather or industrial dispute.

It is the only permanent, cross-Channel link which can be started now.

Cross Channel Services

Road Freight, Cars and Coaches

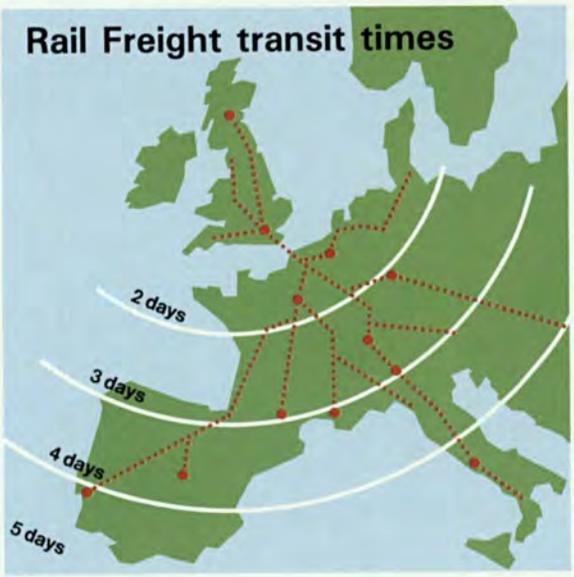
Frequent shuttle services operating from the Channel Tunnel Terminal at Cheriton, near Folkestone, will transport cars, coaches and commercial road vehicles in single and double deck ferry trains to Sangatte near Calais in 25 minutes.

Rail Freight

Freight trains of through wagons and containers will operate between Britain and continental centres. BR's Freightliner and Speedlink services will thus be integrated with similar services on the Continent. There will be road-to-rail transfer facilities for container traffic to and from south-east England and Northern France at Cheriton and Lille respectively.

Rail Passengers

Passenger services will operate at high speeds between London and Paris, Lille and Brussels, with onward connections to other main centres. Passengers will also be able to join certain trains at Cheriton.



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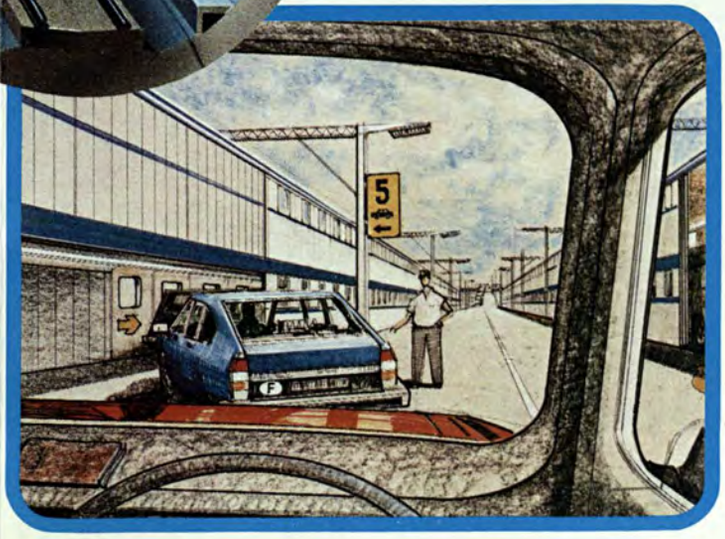
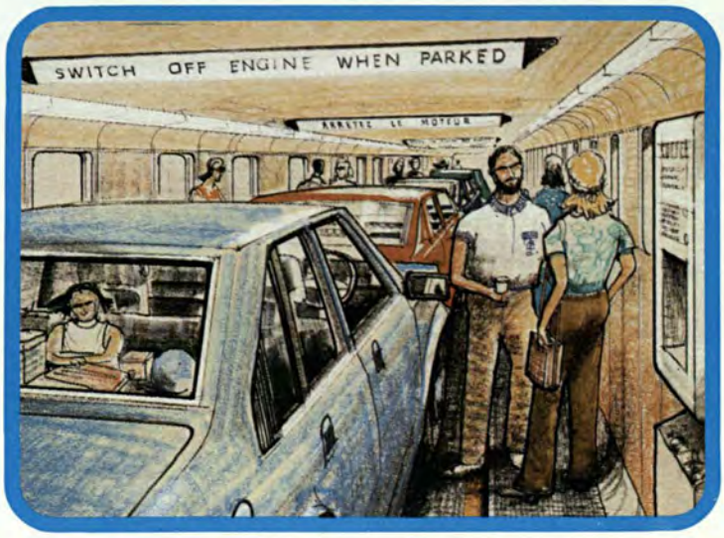




Tunnel facts

The Tunnel:

— Twin single track rail tunnel
— Diameter 7m
— Length 50km (37km under the sea)
— Depth below sea bed 40m
— Connected to 4.5m diameter service tunnel by cross passages

Terminals:

— Road: at Cheriton near Folkestone and Sangatte near Calais
— Rail passengers: at Waterloo (London) and Cheriton

Capacity:

— Trains operating at 5 minute intervals, 3,600 cars per hour in each direction.
— Frequency of 2½ minutes is feasible

Journey Time:

— Road: ferry trains 25 minutes
— Rail passengers:
London—Paris 4¼ hours
London—Brussels 4 hours

Tunnel Tolls:

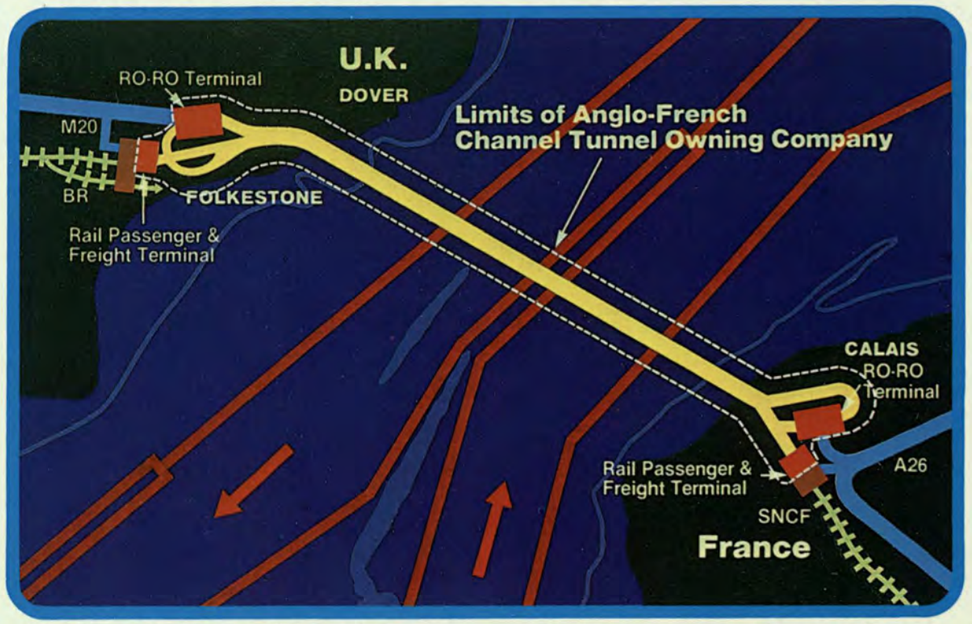
— Competitive with sea ferry charges

Capital cost of construction:

— £1.9bn at 1983 prices, to be shared equally between UK and France

Programme:

— Development & Financing: 2 years
— Construction: 6 years



The Owning Company will have total operational control of the road vehicle ferry train services and, in conjunction with BR and SNCF, of the passage of conventional rail passenger and freight trains through the tunnel.

Direct road access to and from the rail passenger and freight terminal, and to the ferry train services at the Tunnel terminals, will ensure a reasonable cross-Channel service in the event of any interruption of through rail services in either country.

Environment

The project will have a minimal environmental impact during construction and use. It is currently proposed that the UK terminal will be built at Cheriton on land already owned by the Government. There will be a main line passenger terminal in London but no new rail line will be required to Folkestone.

The M20 motorway from Folkestone to London and the M25 motorway around London will be completed before the Tunnel opens.

Official Reports

The UK Parliamentary Select Committee on Transport in 1981 and the UK/French Joint Study Group in 1982 both recommended the adoption of a bored tunnel. The latest Report from the Anglo French Channel Link Financing Group is also expected to recommend that a bored tunnel scheme is the only fixed link capable of being privately financed.

1974 Workings

The extensive tunnel workings at Shakespeare Cliff, Dover, and at Sangatte, completed before the Project was abandoned in 1975, will be fully utilised.

Employment

The construction of the Tunnel will result in the creation of several thousand new jobs. In Kent alone it will provide some 8,000 permanent employment opportunities.

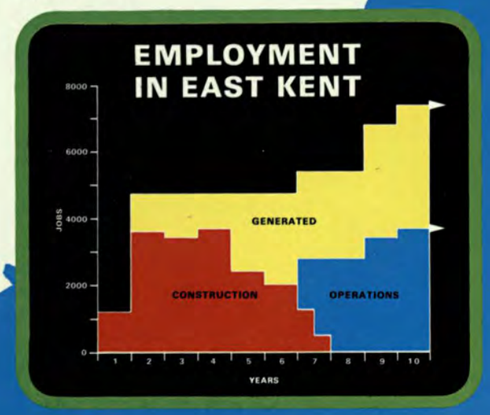
In addition, materials and equipment to the value of some £600m will result in a significant regional employment potential within the UK.

For Example:—

—Reinforcing steel	£24m	Sheffield
—Cast iron tunnel linings	£52m	Nottingham
—Cement	£17.5m	Kent
—Tunnel boring machines	£24m	Glasgow/ Midlands
—Signalling and lighting equipment	£5m	Midlands
—Ventilation and cooling equipment	£24m	Midlands
—Special rolling stock for road vehicle/ shuttle trains	£180m	Birmingham
—Tunnel spoil removal system	£24m	Glasgow
—Construction plant	£24m	Glasgow
—Electric locomotives	£36m	Manchester/ Loughborough
—Overhead line equipment	£24m	Manchester
—Special passenger rolling stock and dual voltage locomotives	£60m	Derby, Manchester, Loughborough

Total potential orders for British Steel Corporation could reach £250m.

Further information from:—
The Channel Tunnel Group,
London W6 7EN.
Telephone: 01 846 3113
Telex: 25666



Financial Projections for Channel Crossings

Prepared for Euroroute by Coopers & Lybrand Associates Limited
23 January 1984

Summary

1. At your request we have examined the relative financial viability of the Euroroute, as compared with the double-track tunnel proposal. We have made financial projections on two sets of assumptions, those of the Joint UK/French Study Group, and an alternative set of assumptions, based on our own judgement of traffic potential, and the most up-to-date technical assessments of cost available.

2. We have at all points in our analysis attempted to be rigorously objective in assessing the relative potential of the two schemes.

3. Even when we combine the Joint Study Group's assumptions (generally unfavourable to the Euroroute) with a high inflation rate, we only obtain a figure for the maximum debt of the Euroroute of £25 billion, far lower than the widely anticipated figure of £54 billion. When inflation rates closer to current expectations are used, the maximum debt is reduced to £13 billion.

4. When more up-to-date and detailed assumptions are used, we find that the financial rate of return for the two schemes are very close; 8.5% per year for the tunnel and 8.3% for the Euroroute. It should be noted that these calculations do not allow for the lower capacity of the tunnel; this will further add to the advantages of the drive-through scheme.

Financial Projections for Channel Crossings

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23 January 1984

Introduction

1. In June 1982 a Joint Study Group of the UK and French Departments of Transport presented a study of the various fixed Channel crossing schemes being promoted at the time (Fixed Channel Link: Report of UK/French Study Group; HMSO Cmnd. 8561)
In response to this study's recommendations, the two Governments asked a group of five British and French clearing banks to prepare a report on the potential financing of the schemes. Publication of this report is now imminent.

2. The findings and recommendations of the banks' report have been widely anticipated, and indications are that their conclusions may be based on a set of assumptions which introduce substantial disadvantages to the Euroroute, as opposed to the double-track tunnel scheme. We believe that different sets of assumptions, which are both more plausible and better substantiated, lead to a very different picture. In this report we present two sets of financial projections:

a) projections based on the assumptions set out in the Study Group report; and
b) projections based on our own assumptions, based where possible on more detailed or up-to-date technical assessment, and our own judgement about the schemes' traffic potential.

3. We have at all points in our analysis attempted to be rigorously objective in assessing the relative potential of the two schemes. It is worth noting that while our cost assumptions tend to favour the Euroroute, compared with those of the Joint Study Group, our traffic assumptions tend to favour the tunnel.

The Financial Framework

4. The Joint Study Group did not undertake a financial analysis of the schemes' profitability. We have therefore had to make some supplementary assumptions about the financial framework under which the schemes will operate. The assumptions made are as follows:

a) charges for the use of the links will be as follows (averaged where appropriate over seasonal and other variations):

£60 per car
£7 per coach passenger
£7 per through rail passenger (but see (c) below)
£4 per short-trip foot passenger
£10 per tonne of freight (but see (c) below)

b) the entity operating the link will be responsible for all the terminal works at the portals, and for the means of transporting passengers and vehicles between them, other than through trains;

c) as a consequence of this, 20% of through rail revenue (but not ferry train revenue) is deemed to be payable to the national railway authorities;

d) the entity responsible for constructing and operating the link will raise all its cash requirements from loans, repayable as the first call on any cash surpluses (after operating expenses).

e) the traffic growth foreseen in the Joint Study Group report, and in our report for Euroroute in July 1982, will not continue indefinitely. We have assumed that it will reach a maximum level in 2022, after 30 years' operation, and remain constant thereafter.

We have not allowed for the lower capacity of the ferry trains in the tunnel than the Euroroute roadway.

Projections using "official" assumptions

5. The report of the official UK/French Study Group in 1981 made certain assumptions about the traffic and costs of the schemes. We have examined the financial consequences of those assumptions both for the Euroroute and for the double-track tunnel proposal, under a number of assumptions about inflation, interest rates, and cost overruns. It should be noted that the Study Group started with assumptions unfavourable to Euroroute, in that they added a proportionally greater margin to the capital costs than they did to the other schemes. Their resulting capital costs were (converted by us to 1983 prices):

Euroroute	:	£7132m	(60% more than your estimate of £4440m)
Tunnel	:	£3517m	(15% more than the promoters' estimate)

6. On what we believe to be the banks' assumptions about inflation (9% per year) and interest rates (13% per year), the following results emerge

Scheme	Maximum Debt	Debt cleared in
Euroroute	£25,000m	2013
Tunnel	£10,000m	2010

These "official" assumptions have, you will note, built in a 60% cost overrun on Euroroute. However, much greater overruns would be required to obtain the widely leaked £54 billion figure.

7. In the present economic and political climate, it seems unduly harsh to assume that 9% inflation will continue for the foreseeable future. If inflation were 5% per year, in line with present rates and Government objectives, and interest rates 9%, the results would be:

Scheme	Maximum Debt	Debt cleared in
Euroroute	£13,000m	2014
Tunnel	£5,700m	2010

8. If, however, inflation rates were as high as 9% recent experience suggests that real interest rates would be lower than the 4% assumed above. If interest rates were only 11%, the following results would be obtained:

Scheme	Maximum Debt	Debt cleared in
Euroroute	£16,500m	2009
Tunnel	£7,200m	2007

Projections using our own best assumptions

9. Some of the assumptions in the Study Group report, could, in our view, be improved. These include:

a) traffic assumptions; in our report in July 1982 we set out in detail our views on traffic projections, and the evidence we have seen since then has not caused us to change our views;

b) capital costs; the costs ascribed to Euroroute in the Study Group report are substantially higher than those your latest work implies and we believe that in adding higher cost margins to Euroroute than to the tunnel the Study Group were not even-handed;

c) operating costs; the operating cost figures used, especially for the ferry train service, by the Study Group were not based on any detailed calculations and operational assessment.

10. We believe, therefore, that a more accurate picture of the financial prospects of the schemes would be obtained by using different assumptions. These assumptions are:

a) we have used our July 1982 traffic projections for the Euroroute; for the tunnel, we have used those projections for the total traffic, and the Study Group diversion assumptions;

b) we have used your 1983 capital cost estimate for the Euroroute; for the tunnel, we have taken the promoters' figure, scaled up for inflation;

c) we have used estimates for the operating costs for Euroroute supplied to us this week by Mott, Hay Anderson; for tunnel, we have used a formula supplied to us in 1979 by Situmer, based on their detailed analysis carried out for the scheme cancelled in 1975, adjusted for subsequent inflation.

The resulting projections may be summarised as follows:

Scheme	IRR (50 year life)	NPV at 5%	9% inflation 13% interest Maximum Debt	Debt cleared in	9% inflation 11% interest Maximum Debt	Debt cleared in	5% inflation 9% interest Maximum Debt	Debt cleared i
Euroroute	8.3%	£3382m	£12,000m	2009	£9100m	2006	£7200m	2009
Tunnel	8.5%	£2390m	£8000m	2009	£6200m	2006	£4850m	2009

11. An interesting feature of projections based on these assumptions is that when the schemes are treated even-handedly as regards the likelihood of delays and cost overruns, the financial rates of return obtainable from the two schemes are very similar. You should note that we have made no allowance for the lower capacity of the tunnel in making these projections; if this were included the Euroroute may well have a substantially higher return than the tunnel scheme.

EUROROUTE

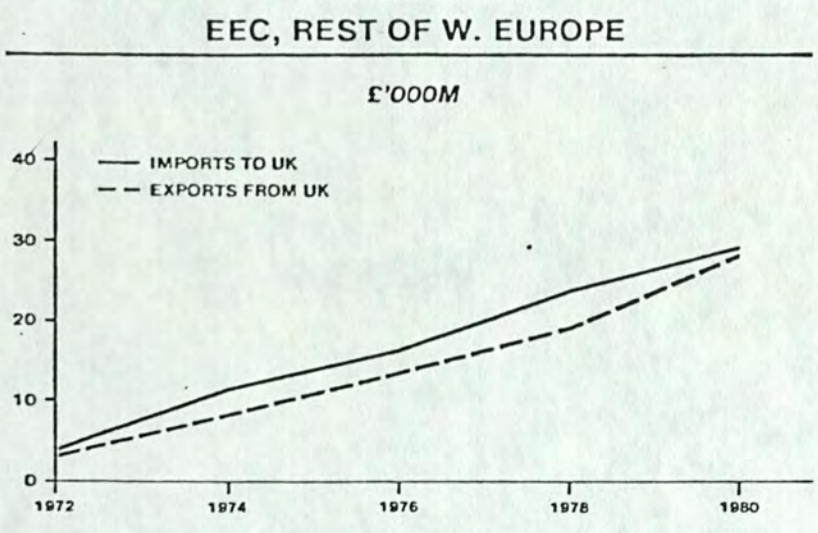
Introduction

EuroRoute is a road and rail, bridge and tunnel scheme which was initiated by Mr. Ian MacGregor. Its development is now supported by British Shipbuilders, Trafalgar House, Fairclough Construction Group (AMEC), John Howard and Company, British Steel and Raymond International Inc.(USA). In December 1983, the British participants were joined by Chantiers de l'Atlantique (Alsthom Atlantique) and Grands Travaux de Marseilles - Entrepose, who will actively develop the scheme in France.

The Market

The volume of traffic now crossing the Channel dictates the need for a fixed link. The type of traffic must determine the type of link.

The volume of exports to Europe from the U.K. has grown from £4,200m in 1972 to £30,000m in a decade. It is our largest export market and if trade is to thrive, our goods must be transported in the cheapest possible way.



Much of this trade is carried on road vehicles. 18m tonnes of unitised freight cross between Britain and Continental ports. Within this figure, road haulage has increased from 2.7m tonnes to 14.0m tonnes in a decade. Government figures in Cmnd. 8561 show road transport continuing to grow strongly to the end of the century.

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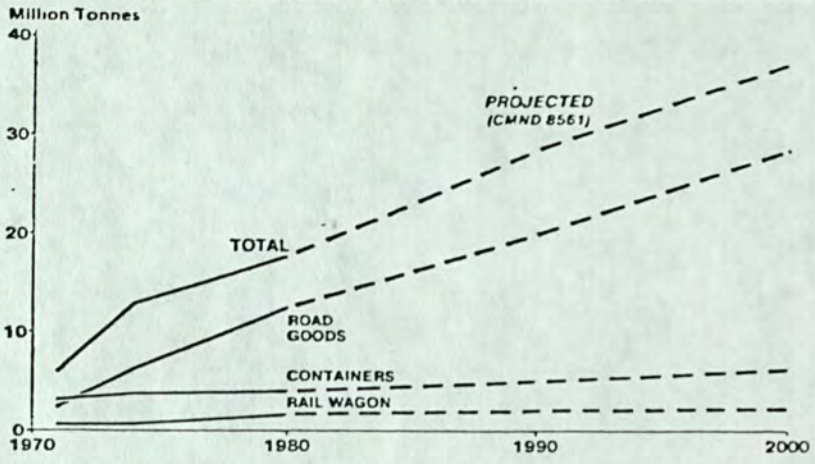
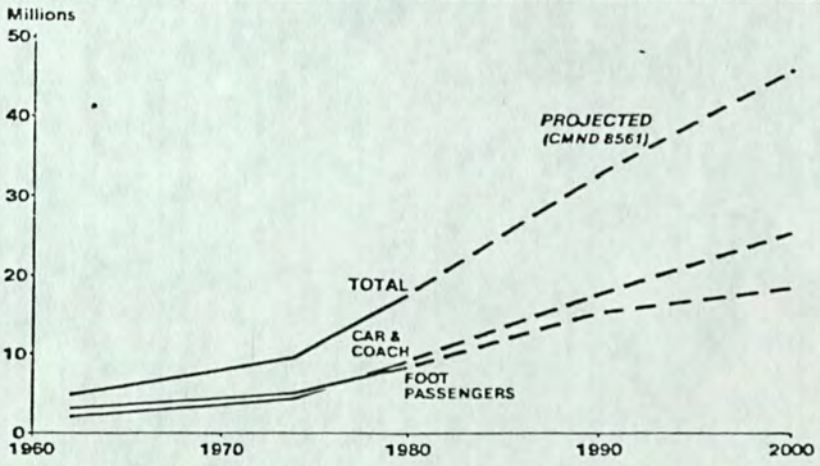
GROWTH IN UNITISED FREIGHT TRAFFIC *between* BRITISH – FRENCH/BELGIAN/DUTCH PORTS



Road transport dominates the passenger market. 5.5m people crossed the Channel in 1962. This now exceeds 20m. Nearly 80% of passengers travel with cars or coaches and a percentage of the remaining foot passengers will have reached the ports by road.

GROWTH IN CROSS-CHANNEL SURFACE PASSENGER TRAFFIC



A fixed link would last for 100 years or more and any solution must be related to current traffic needs and anticipate the way in which traffic will develop in the next century. It therefore seems essential that any fixed crossing must allow road transport to drive freely across.

Types of Fixed Crossings

There are two main proposals for the fixed link. These are EuroRoute and the twin 7m rail tunnel. The tunnel scheme envisages putting road transport onto railway trains for the journey. This is no improvement on loading road vehicles onto ferries. Indeed, it has the disadvantage of limiting competition and putting independent road transport under the control of the railways and the rail unions.

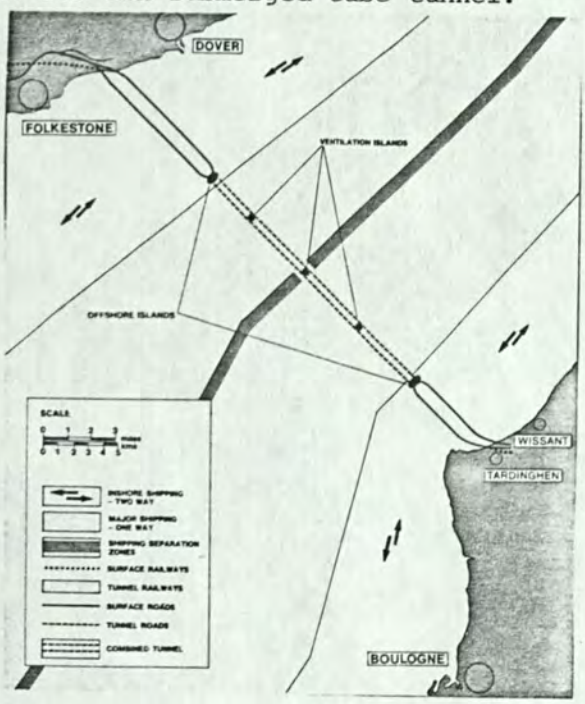
(cont ....)

The proposal that car passengers should sit in petrol laden vehicles for the journey has major safety implications. The rail tunnel is costed at £2 bn. This is 50% of the cost of EuroRoute but it has much less traffic.

A road bridge solution was considered by EuroRoute but it was discarded for strategic and financial reasons. Although a bridge is technically feasible, it would require spans very much larger than those previously built if the main sea lanes were to have minimum obstruction. This new technology would obviously cause concern to financial institutions. Further, it was assessed that a crossing without a rail link would probably be unacceptable to the French Government in view of the influence of SNCF.

A complete road tunnel would be impracticable. For psychological reasons, driving twenty miles underground would be unacceptable to many and this would limit the traffic. The cost of ventilating road tunnels for this distance would make it uneconomic.

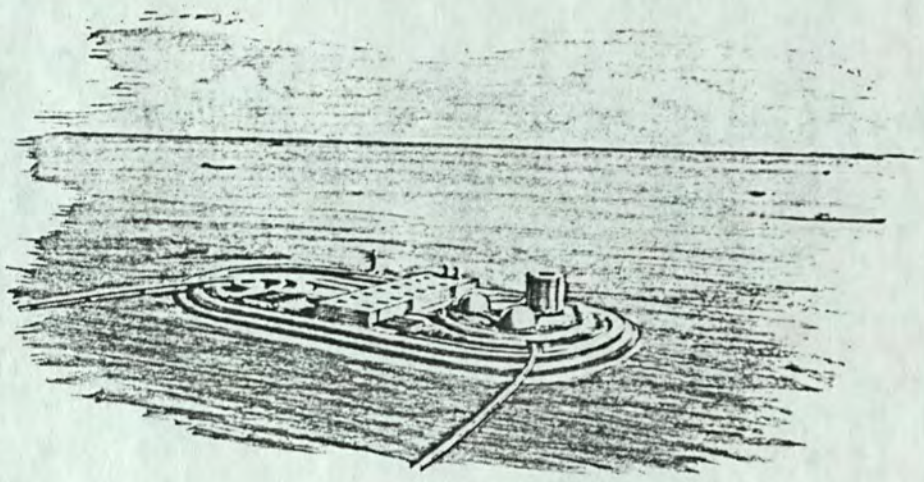
The optimum solution was found to be a combination of bridge and tunnel. This is the concept of the EuroRoute road and rail scheme. Road bridges connect the coasts to offshore islands, seven miles from Britain and four miles from France. At the offshore islands, the road traffic descends to two separate dual carriageways in a submerged tube tunnel for the journey under the main sea lanes. The central ventilating duct is large enough to accommodate a twin track railway of Continental loading gauge. This provides a low cost rail facility which continues beyond the islands to the coast in its own submerged tube tunnel.



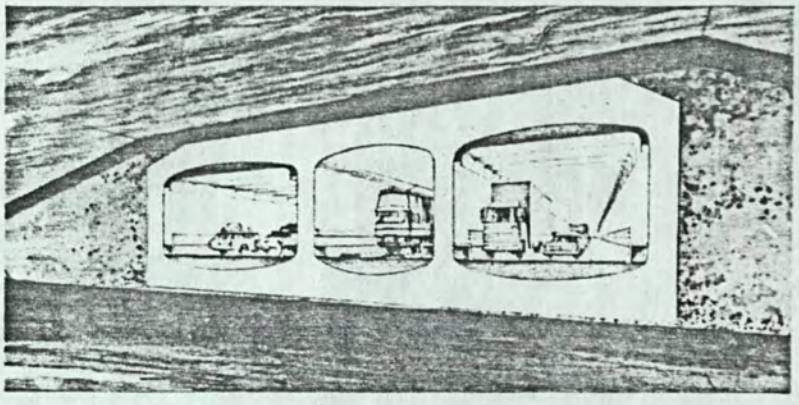
The bridges are simply supported spans of 125 m except at the inshore navigation crossing points where spans of 500m cable stayed are proposed. The bridge decks would be built in shipyards remote from the crossing and towed down for lifting onto prepared piled supports.

(cont .....)

Pre-fabrication is an essential part of the speedy construction of EuroRoute which is also applied to the islands. These have reinforced concrete cores of similar size to the oil production platforms in the North Sea. They would be constructed probably in Scottish yards and floated to the Channel site for sinking into position. They are protected by rock armouring and extended with hydraulic fill.



Road vehicles descend in one spiral at the islands to the submerged tube tunnel. The tunnel is made up of sections built at shipyards or coastal sites which, with ends sealed, are floated to the Channel where they are sunk into a dredged trench each connected to the section previously laid and then covered in. This form of tunnelling is becoming commonplace for tunnels under water. The ability to make sections at several sites ensures rapid construction.



(cont ....)

Is it technically feasible

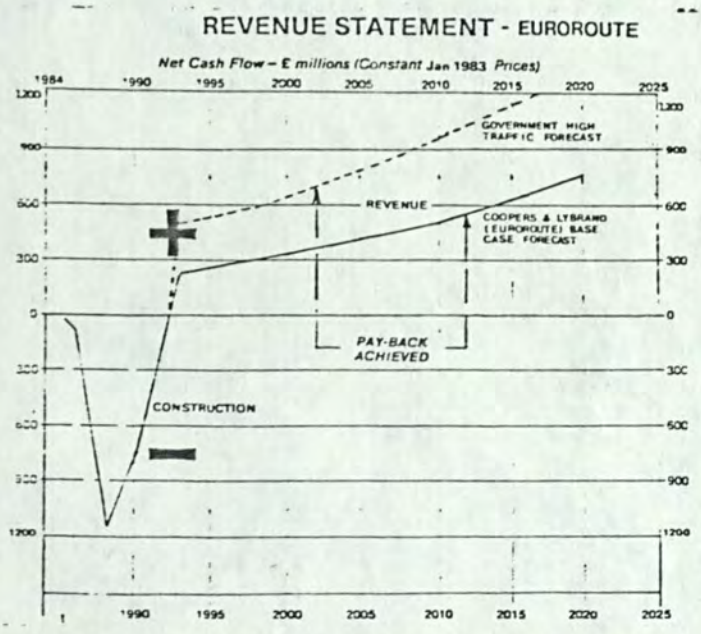
The Channel is relatively shallow. 83% of the proposed route for EuroRoute is within the depths previously dredged for submerged tube tunnels. The remaining 17% is only some 12 metres deeper. Current flows are not a problem being less than those in San Francisco Bay.

The bridge viaducts are uncomplicated. Common steels to BS4360 Grade 43 or 50 will be adequate. The placing of the piles and erection of the decks are common practice.

The construction of the offshore islands is less demanding than building the Ninian Platform for the North Sea which weighed 500,000 tonnes and was executed by one of the EuroRoute partners. All facilities exist for building the island cores. The three ventilation islands are smaller structures but built on the same principle.

The submerged tube tunnel sections may be either steel shells or reinforced concrete shells. The manufacturing, towing and laying of these units is well known technology in which a EuroRoute partner is the world leader. Their last three major submerged tube projects have been executed on time and within budget. EuroRoute is completely feasible.

Cost and Returns



In the submission to the Department of Transport in March 1981, EuroRoute was costed at £3,800m at mid 1980 prices. EuroRoute has been recosted by the consulting engineers Mott, Hay and Anderson, in association with contractors both inside and outside EuroRoute at January 1983 prices. The low and high construction cost figures are £4.06 billion and £4.40 billion. A construction period of seven years has been planned.

(cont ....)

The phasing of this expenditure would be:-

1985	35m
1986	78m
1987	783m
1988	1157m
1989	993m
1990	748m
1991	397m
1992	257m

Detailed financial models have been run by Coopers and Lybrand and Lazard Brothers. They show that using the Government's median traffic assumptions, Cmnd. 8561, somewhat written down, the project is paid for by 2012 and yields an 8.9% real return assuming 4% funding.

As further research of the EuroRoute project has been carried out since the January 1983 figures were compiled, it is believed that the sequence of operations and hence the initial expenditure figures can be so adjusted that part of the crossing can be opened to road traffic at the end of the third year to enable revenue to start being earned. Partial use of EuroRoute is feasible before full completion with early revenue contributions but this would not be possible with a rail tunnel.

Environmental Aspects

EuroRoute is unobtrusive. It requires only 350 metres of exposed motorway at the head of the Alkham Valley, Kent, before it enters a tunnel to emerge at Abbots Cliff onto the viaducts.

No extensive assembly areas are required in Kent as envisaged for loading road vehicles onto trains in the alternative rail tunnel scheme.

Effect on Employment

(cont ....)

500,000 man years of work would be generated by EuroRoute in shipyards, platform building yards, cement plants, quarries etc. These jobs would be dispersed around the country, often in areas of high unemployment. It means 50,000 new jobs producing a facility which is commercially viable.

This increase in employment is estimated by Coopers and Lybrand to benefit Government revenue by £730m through increases in tax receipts (£470m) and reduction in unemployment benefits (£260m). These calculations assume that half the project is built in the U.K.

EuroRoute

NET EFFECT ON GOVERNMENT REVENUES

At 1980 Prices

ADDITIONAL CONTRIBUTIONS FROM THOSE EMPLOYED	£ MILLIONS
■ Income Tax	+212
■ National Insurance	+111
■ National Insurance Surcharge	+ 22
■ Indirect Taxes	+130
DIRECT SAVING IN GOVERNMENT EXPENDITURE	**£ MILLIONS**
■ Unemployment Benefit	−170
■ Social Security Payments	− 78
■ Redundancy Payments	− 9
Total increase in Government revenue/savings in expenditure	+732
CAPITAL COST OF UK PORTION OF THE PROJECT	**£1,900m**

The Ferries

Ferries would not disappear. On the short sea route they would retain approximately 25% of the business. Other routes would be relatively unaffected. The following illustrates the traffic pattern:-

Year 2000 - Cmnd. 8561

	Total	EuroRoute
Foot Passengers		
Dover Straits - France	11.5	9.4
" " - Belgium	3.5	2.1
Other routes	4.4	.6
TOTAL	19.4	12.1
Car Passengers		
Dover Straits - France	7.9	6.0
" " - Belgium	2.3	1.4
Other Routes	3.9	.6
TOTAL	14.1	8.0
Coach Passengers		
Dover Straits - France	8.0	7.2
" " - Belgium	2.3	1.4
Other Routes	1.1	.2
TOTAL	11.4	8.8
GRAND TOTAL	44.9	28.9

(cont .....)

Freight (m tonnes)

Year 2000

	Total	EuroRoute
Ro Ro Road Goods		
Dover Straits - France	7.2	5.4
Dover Straits - Belgium	7.7	3.8
Other Routes	13.2	2.0
TOTAL	28.1	11.2
Rail Wagon		
UK - France	1.2	1.1
UK - Belgium	1.2	.6
TOTAL	2.4	1.7
Containers		
UK - France	1.0	.4
UK - Belgium	1.2	.2
UK - Holland	4.5	.2
	6.7	.8
GRAND TOTAL	37.2	13.7

Conclusions

EuroRoute would provide high quality road and rail routes connecting the Kent coast near Folkestone with the French coast south west of Calais. This would result in greatly improved services for:-

* car travellers
* coach travellers
* road freight
* through rail passengers
* rail freight

The improvement in service for travellers by road, whether in car or coach, would be vast. EuroRoute would be connected to the British motorway system and thence, via the M20 and M25 motorways, to all parts of the U.K. Similar direct access would be provided on the French side to the French, Belgian and German motorway systems. Travellers would be able to drive directly between the U.K. and Continental motorways. They would not need to connect with a ferry or wait in a terminal area to be transferred to the next available space on a limited capacity rail-ferry service.

(cont ....)

The total time to drive across the EuroRoute would be about 35 minutes and it is estimated that with the elimination of the need to queue and secure places on a specific ferry and the faster journey time by road than on board a ferry, that journey times for most passengers would be reduced by between 1½ and 2½ hours compared with the alternative ferry service.

In congested periods, the improvement in through journey time will be substantially greater. Travellers in these periods tend to book because of congestion, and to allow large margins because of uncertainties in road journey times. None of this will be necessary on the drive through EuroRoute.

Rail passengers also would enjoy the benefits of a fast through double-track service connecting the British and Continental rail systems. Train service could be provided at regular intervals from London and the Provinces to Paris, Brussels and other principal European cities. The through rail journey time from London to Paris would be between 4 and 4½ hours, a saving of over 2 hours compared with the fastest current rail-ferry-rail service. The London - Brussels rail time would be reduced to no more than 4 hours, a saving of over 3 hours compared with the rail-ferry-rail alternative. There would also be significant advantages in terms of comfort and convenience.

To summarise:-

1. Traffic dictates that a road crossing is essential and justified.
2. EuroRoute is the optimum road and rail crossing. Its technical feasibility is unquestioned.
3. EuroRoute costs £4.06 - £4.4 billion to build at January 1983 prices. This is twice the cost of a 7m rail tunnel but it provides a rate of return of over 8% above any inflation. We discredit apparent attempts in the five Banks Report, now being sent to the Department of Transport, to change the basic 2:1 cost ratio.
4. EuroRoute costs can be controlled by the modular construction method.
5. Actual construction time is shorter than a rail tunnel.
6. There is greater safety for passengers and speedy access to any accidents.
7. International legal and marine questions will not delay construction.
8. There are robust revenues and no financing problems post completion.
9. Independent road transport retains its independence on the crossing. There is competition with the railways, not control by them unlike a rail tunnel.
10. EuroRoute offers the opportunity of substantial reductions for future tariffs on the Channel crossing.

ooOoo

KWG
21.2.84

4th Edition, 1984

EuroRoute

THE CASE for EuroRoute grows stronger and clearer... the importance of direct, fast and efficient freight transport to assist trade... the difficulties and dangers of a rail-only crossing... the stimulus to the European economy from the construction in the short term and the operation of the link in the future... the incidental bonus of thousands of jobs where they matter most

EUROROUTE — IT'S A TWO-WAY VENTURE

French join backers

EUROROUTE is a completely practical bridge-and-tunnel link, capable of giving Britain and the Continent the most efficient and effective direct communications by road and rail. It is the only bridge-and-tunnel scheme to meet the needs of both forms of freight transport — a vital factor now that Western Europe is the UK's biggest and most rapidly expanding market.

It will also allow motorists to drive between Britain and France without the queues and delays of the present ferries . . . and at less cost.

EuroRoute is the only proposal for a permanent road and rail Channel crossing which has backing from both the public and private sectors of industry in France as well as Britain.

Because most of the work on the standard, modular bridge-and-tunnel sections will be in shipyards, platform building facilities and engineering shops, cement plants and quarries, most of the 50,000 UK jobs created will be in Britain's worst unemployment blackspots — not in the South-East or Channel area. A similar number of jobs will be created in a "ripple" of indirect involvement by supporting industry throughout the UK.

An equal number of jobs will be created in France.

Man-made island

The crossing will start out from the English coast as a bridge or viaduct which will cross the inshore shallows to a point eight miles out. There it will reach a man-made island where the tolls, immigration and necessary administrative offices, plus duty-free and restaurant facilities can be located. This avoids the environmental impact on the Kent coast such as that implied by the other crossing proposals.

At the island, the dual highway descends in a shallow spiral to join the twin-track railway which crosses from shore to shore in a tubed tunnel. Three tubed tunnels then cross the central, eleven-mile navigable channel — two one-way roadways with the railway between. Conceived as a ventilation conduit for the roadways, the central tunnel will accommodate the railway with its electric trains at little additional cost.

Five miles from France, the roadway will spiral gently back up to another artificial island and complete the journey to France by bridge.

The job-creating techniques utilised in the construction of the bridge-and-tunnel sections assists with rapid completion of the project, and the quickest possible return of the capital invested to finance the project from private sources internationally. The taxpayer will not be asked to fund EuroRoute and its rapid construction to first operation in under five years enables it to avoid the worst effects of international inflation which other, slower projects would suffer.

EuroRoute is the scheme put forward by Ian MacGregor and backed in the U.K. by British Shipbuilders, Fairclough Construction Group Ltd, John Howard & Co Ltd, Raymond International Builders Inc. (USA), Trafalgar House and British Steel Corporation.

Two of France's largest industrial groups have joined together to develop and promote the EuroRoute project in France. Alsthom-Atlantique, with its integrated shipyards, Chantiers de l'Atlantique, and the major private sector construction company, Grands Travaux de Marseille-Entrepose, have formed the nucleus of the Groupement d'Interet Economique, to be joined by other major French companies.

EuroRoute's Chief Executive is K W Groves, whose office is at 12 Addiscombe Road, Croydon, CR9 3JH.

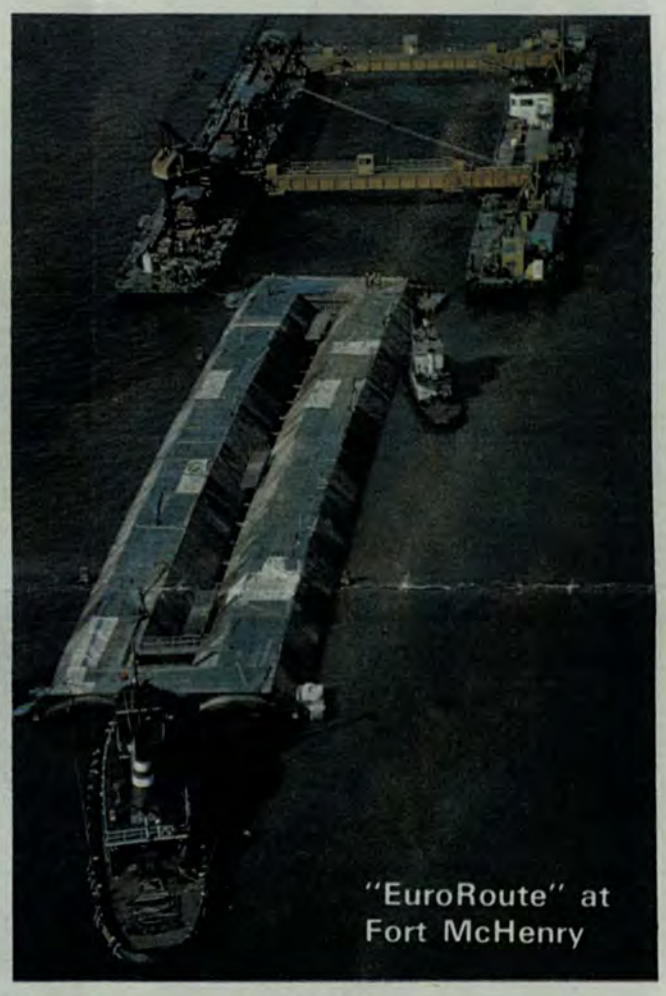
EuroRoute's advisers who have been involved in the preparation of the proposal are: Lazard Brothers & Co Limited (Finance); Mott, Hay & Anderson (Engineering Studies); Coopers & Lybrand Associates Limited (Traffic & Revenue).

Cost-effective

Costing £3,800 million at mid-1980 prices, EuroRoute is not the cheapest crossing solution. But it is the most cost-effective. It is capable of meeting the increase in cross-Channel traffic such a facility will certainly generate.

EuroRoute's costs will be recovered by a system of tolls. Their level will be calculated in relation to costs at the time of completion. Costings have been undertaken and are based on a real rate of return of 7 per cent on the project. Tolls will be competitive with charges for alternative crossing services.

— the support grows — See back page.



"EuroRoute" at Fort McHenry

The Baltimore connection

It is happening at Baltimore NOW.

The technology EuroRoute proposes for the Britain-France link is being exploited in the construction of the Fort McHenry Tunnel, now under way at Baltimore in the U.S. The Baltimore project is the latest application of the technique which successfully broke away from the old, traditional methods of driving bored tunnels. The "new generation" of tubed tunnels are now part of major world crossings between San Francisco and Oakland, Hong Kong and Kowloon, and across Chesapeake Bay in Virginia.

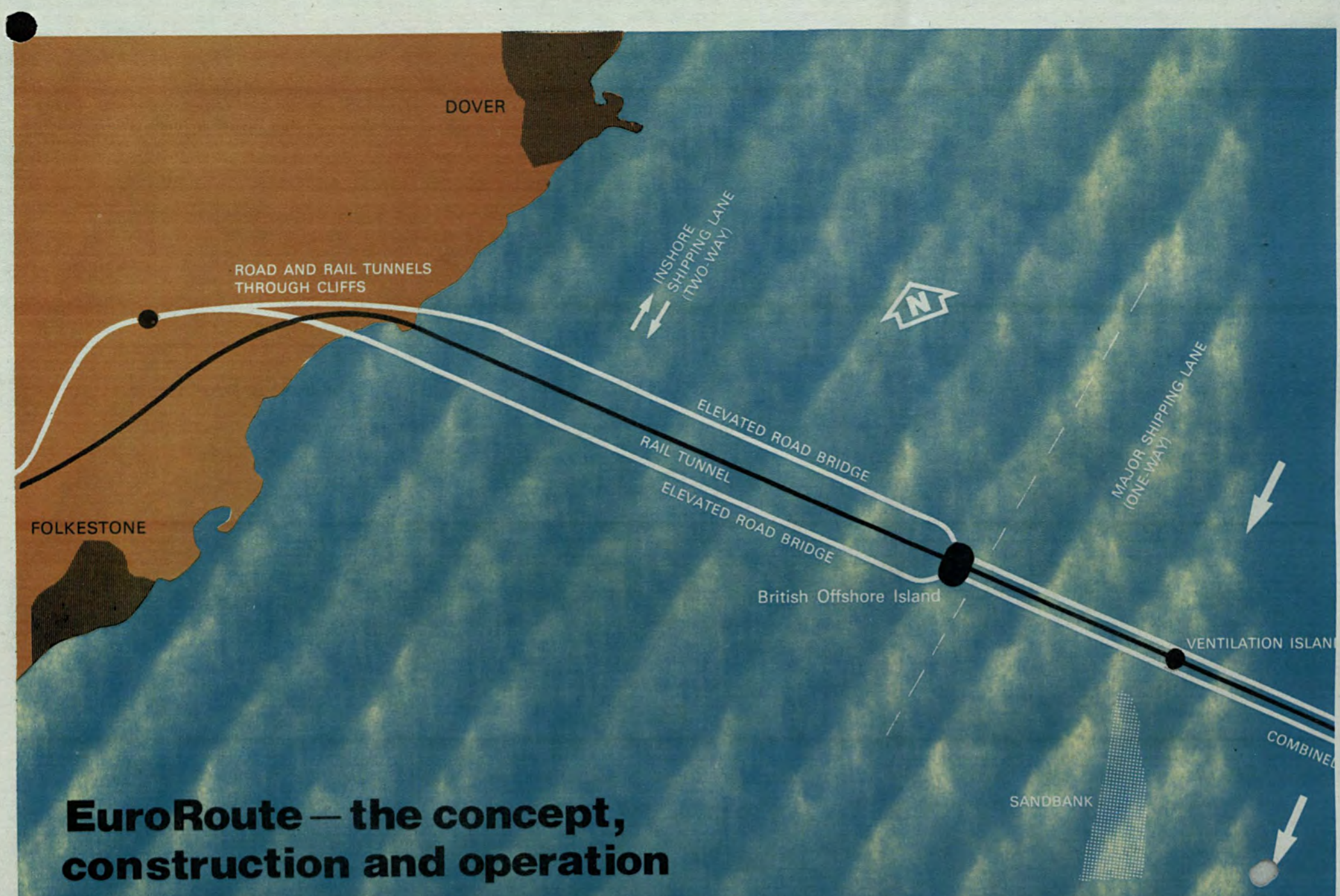
The 17¼-mile Chesapeake crossing follows the same bridge-and-tunnel pattern as EuroRoute. It lies in the hurricane belt of America's eastern seaboard and has been operating successfully for the past 20 years.

Raymond International Builders, Inc. of Houston, Texas are one of the major companies supporting EuroRoute. Raymond were also one of the principal companies involved in the Chesapeake and San Francisco Bay crossings and they are now actively concerned with the Baltimore tunnel.

At Baltimore, however, the "state of the art" demonstrates the progress made since Chesapeake was constructed two decades ago. The Fort McHenry tunnel is being laid in curved sections, rather than the shortest-line solution used in the earlier schemes.

The technique is well established. First, a hydraulic dredge "vacuums" debris, hard clays and sand from the bottom to create a v-shaped trench. A gravel base is laid in the trench and this forms the bed for the tunnel sections which are lowered into position by a lay-barge, (see picture above) joined and sealed into a continuous run of tunnel which is then covered with rock to protect it from accidental damage.

How the tunnel sections are made: back page.



EuroRoute – the concept, construction and operation

The Means

THE crossing incorporates two 2-lane carriageways and two rail tracks. The railway is carried in submerged tube tunnel throughout the crossing. The road carriageways are carried on twin viaducts across the inshore shipping zones of the Channel, and in a common submerged tube tunnel structure with the railway beneath the main shipping lanes. The transition for road traffic from viaduct to tunnel takes place within offshore artificial islands constructed at the boundary of the main shipping lanes.

The overall length of the crossing, excluding onshore approaches, is approximately 36km. (22¼ miles). The central tunnel section beneath the main shipping lanes is approximately 19km (11¾ miles) long.

In addition to the main offshore islands at the boundaries of the shipping lanes, three intermediate islands will be constructed to carry ventilation shafts down to the central section of the tunnel. Two of these ventilation islands will be in line with existing sandbanks in the Channel.

Proposals at the English coast and inland are designed to have virtually no effect on the environment of Kent. The inshore viaducts reach the coast at low level at Abbot's Cliff, and the road is then carried inland in tunnel as far as the Alkham Valley, where it joins the proposed A20 improvement road between Folkestone and Dover. The A20 will link directly to the M20, and thence to the M25 orbital motorway around London. The railway is carried from the coast to Holywell, just north of Folkestone, in tunnel and will then follow the route envisaged for a rail-only Channel crossing as far as the existing main line between London and Dover.

The Method

THE greatest possible use will be made of prefabricated modular construction. The major benefits of this will be, firstly, in allowing fabrication to be spread widely over various locations in the U.K. and continental Europe. Secondly, in giving a substantially reduced period of construction by allowing work to be carried out simultaneously at many different points.

Large prefabricated units will be brought to the site of the crossing from the fabrication areas by sea.

The viaducts consist of a series of simply-supported spans, each 125 metres long. Piers are formed from large diameter steel or concrete cylindrical piles, driven or drilled into the seabed.

The 125-metre-long bridge deck units will be prefabricated complete at coastal sites or shipyards before being launched, and towed by sea to site.

The level of the viaducts will be such that the soffits are well clear of the highest predicted wave. At the navigation openings for inshore shipping, special spans will be provided.

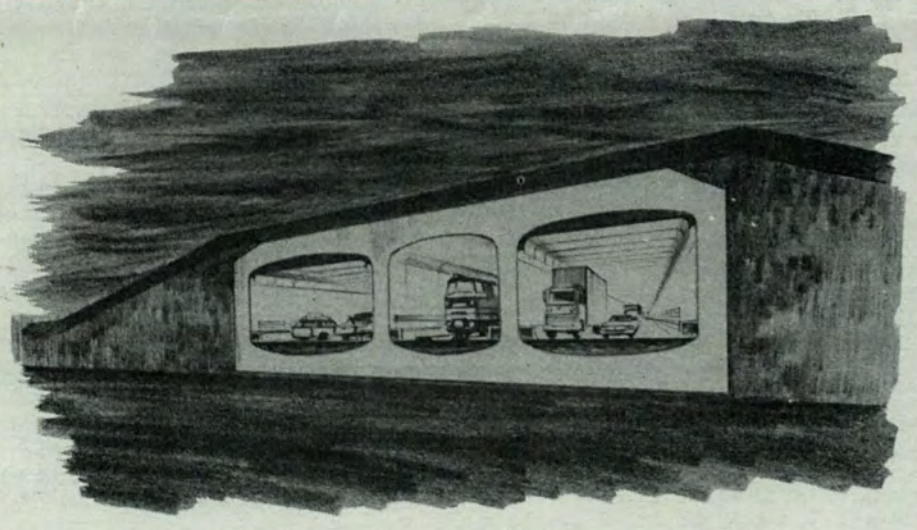
Following the considerable experience gained by British contractors with the placing of very large structures in the North Sea, it is proposed that the two main offshore islands and the ventilation islands should be constructed by placing a large central concrete element, forming the island's core, on the seabed. This will then be surrounded with rock and hydraulic fill to form sloping protective flanks to the islands.

Initial discussions with the Hydraulics Research Station at Wallingford indicate that hydraulic effects arising from construction of the artificial islands, tunnels and other works in the Channel should not be unduly difficult to deal with.

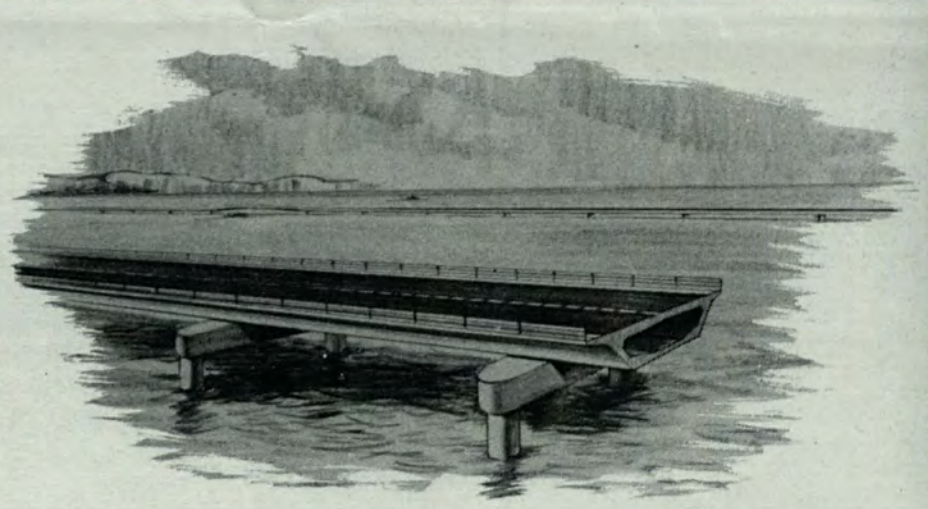
The plant and equipment required for construction in the Channel are within available technology.

The tunnel ventilation system for road traffic will cope safely with the worst conditions created by exhaust fumes with the crossing operating at full capacity.

Additional ventilation to deal with railway require-

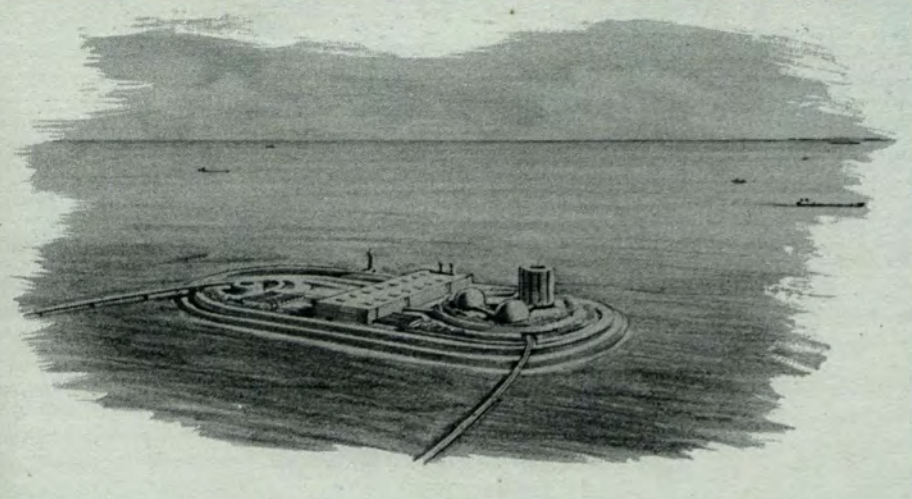


A cross-section of the road and rail tunnels.



Steel box girder viaducts will carry the roadway to the offshore 'islands'.

An 'anatomy' of EuroRoute



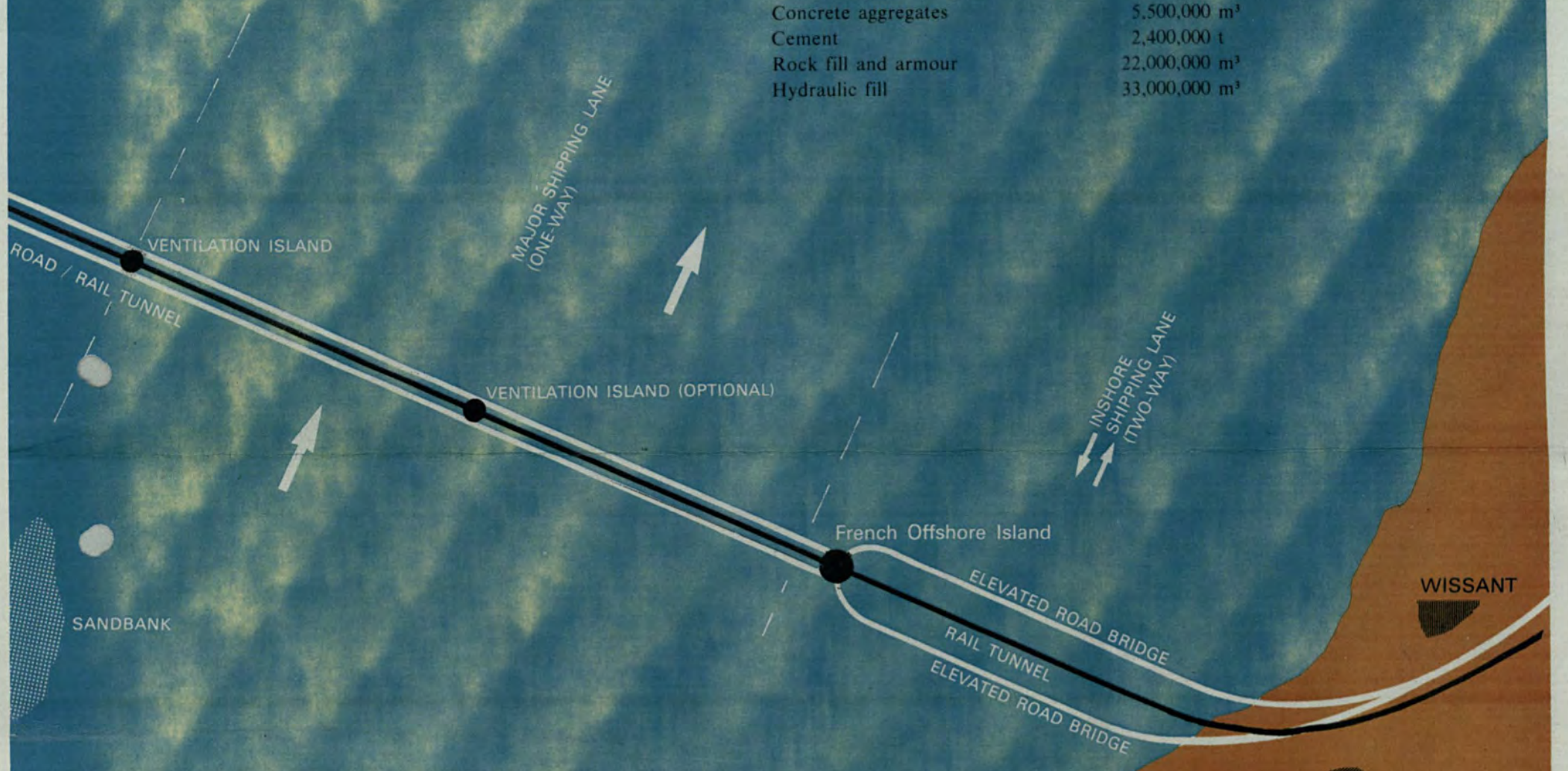
An artist's impression of one of the offshore islands.

A LIST of the materials, plant and equipment, and the quantities of major construction items involved shows the size of the project. It also illustrates the Meccano-like method of construction which uses standard units, built in shipyards and platform yards, in a simplified, fast and safe technique which speeds the return on capital.

ITEM	QUANTITY
Viaduct deck units	268 units, each 125m long.
Combined submerged tunnel units	149 units, each 125m long.
Railway submerged tunnel units	134 units, each 125m long.
Road bored tunnels (on-shore)	6,000m length of single tunnel.
Railway bored tunnels (on-shore)	11,000m length of single tunnel.

Total quantities of main basic materials for the project:

ITEM	QUANTITY
Fabricated steel	350,000 t
Reinforcing and prestressing steel	550,000 t
Concrete aggregates	5,500,000 m³
Cement	2,400,000 t
Rock fill and armour	22,000,000 m³
Hydraulic fill	33,000,000 m³



ments, including emergency conditions, will be provided.

Construction

A FOUR-phase programme is proposed for development and construction of the project. Phase I will cover detailed studies to confirm the feasibility and cost of the project, and legislative documents will be drawn up. In Phase II, legislative powers will be obtained and detailed designs and preparatory work will be carried out. Phase III will cover the main construction of the crossing up to the opening of the first road carriageway to traffic. Provided that all necessary preparatory work is carried out in Phase II, Phase III may be completed in the very short period of 4 years. During Phase IV, the railway and the second road carriageway will be completed and opened to traffic.

Sea Traffic

The EuroRoute crossing is designed to meet the requirements of the Inter-Governmental Maritime Consultative Organisation (IMCO), and particularly, to facilitate enforcement of the traffic separation scheme.

Navigation and monitoring aids will be located at the artificial islands and elsewhere to assist ships on passage and to give warning of the presence of the crossing. Emergency craft will also be stationed at or near the crossing

Environment

THE EuroRoute scheme has been planned specifically to minimise environmental impact, and the overall result of the scheme will be to improve rather than worsen the effects of traffic on the environment in the general area of the approaches to the crossing. In France, the combined road and rail crossing is expected to bring important benefits to the depressed regions of Pas de Calais and beyond.

Operation

THE road and rail sections of the crossing will be operated entirely independently for normal running. Road traffic will be controlled from a centre at which traffic conditions, equipment status and alarm systems will be monitored. This centre will be in contact with the police and other authorities, and will be able to initiate action in an emergency.

The railway will be operated from two control centres, one in England and one in France. In certain types of emergency requiring common operation of the road and rail facilities, overall control would revert to the main control centre.

Emergency personnel and equipment will be available to deal with fire, accident or breakdown.

Internal and external surveillance devices will minimise the risk of sabotage.

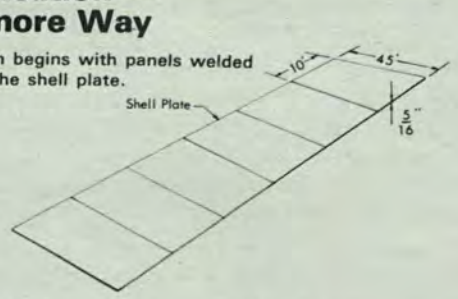
Continued on page 4

This publication gives a thumb-nail sketch of an exciting, but thoroughly practical and well-researched proposal. Full details of all aspects can be obtained from EuroRoute's Chief Executive, K. W. Groves, whose address appears on Page One.

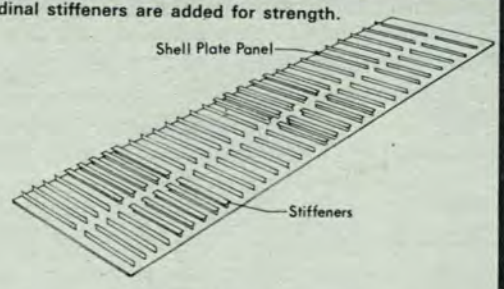
The project is described in detail in the document entitled "EuroRoute — Proposal for Road and Rail Channel Crossing", submitted to the Department of Transport in March 1981.

Tube Fabrication — The Baltimore Way

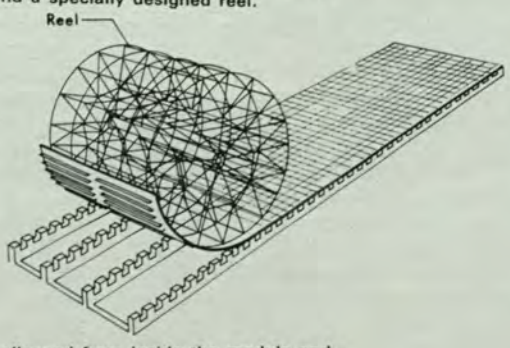
1. Tube fabrication begins with panels welded together to form the shell plate.



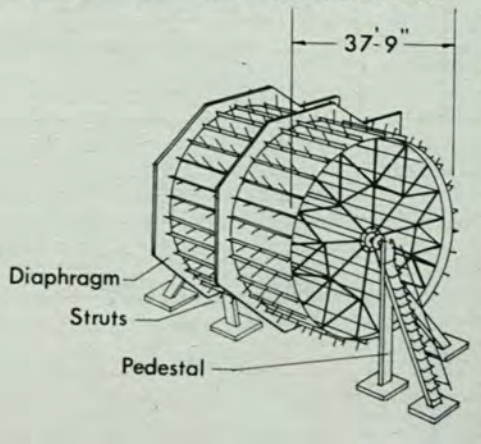
2. Longitudinal stiffeners are added for strength.



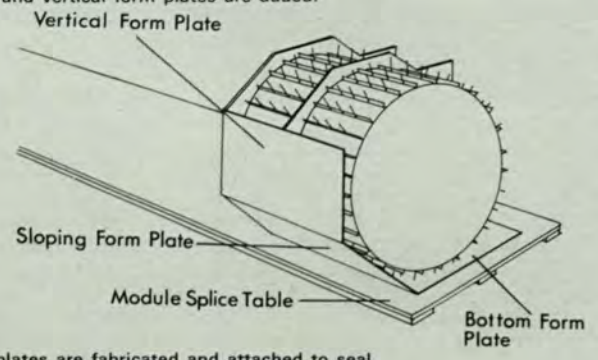
3. Shaping a module begins by wrapping the welded steel plate around a specially designed reel.



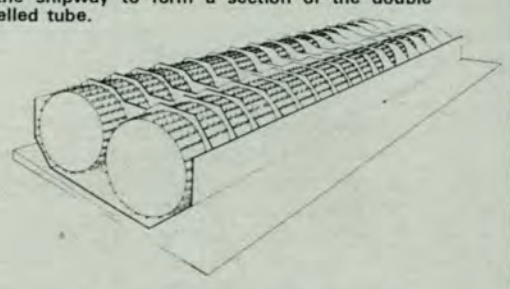
4. The reel and steel shell are transferred to a pedestal where more structural pieces are added.



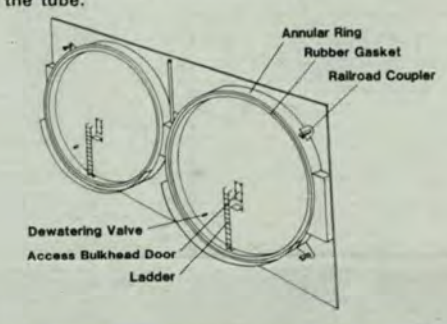
5. The reel is collapsed from inside the module and the module is transferred to a table where bottom, sloping, and vertical form plates are added.



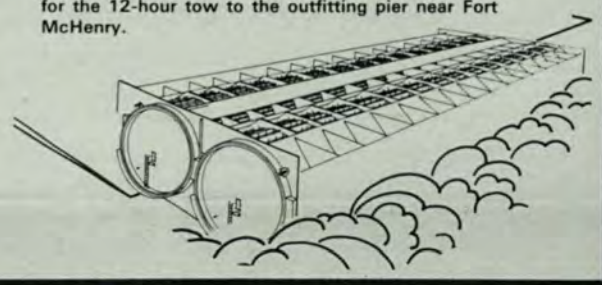
6. Sixteen of the modules (8 for each tube) are joined on the shipway to form a section of the double barrelled tube.



7. Dam plates are fabricated and attached to seal each end of the tube.



8. Keel concrete is placed to add strength and rigidity and the double barreled tubes are side launched for the 12-hour tow to the outfitting pier near Fort McHenry.



The Backers

THE EuroRoute 'venturers' have unrivalled capabilities and experience in major construction projects in many parts of the world — including the newer technologies associated with offshore construction.

Alsthom-Atlantique, the prime French export company for land-based and maritime equipment, has major international interests in heavy and electrical engineering. Its integrated shipyards, Chantiers de l'Atlantique, have major facilities at St Nazaire. This yard has three building docks and a large assembly platform for the construction of offshore units.

British Shipbuilders is one of the most versatile marine groups in the world, able to meet requirements for all types of new ships, repair, engineering products and offshore design and construction.

British Steel Corporation is one of the world's major steelmakers. The steel requirements of EuroRoute are well within its capabilities. It has wide experience of large and complex constructuon projects in all the continents — including the construction and installation of the biggest offshore structures.

Fairclough Construction Group Limited is one of the largest and most successful construction organisations based in the United Kingdon. A major force in the construction industry, the main activities of the Group — civil engineering and building — are carried out both nationally and internationally.

Grands Travaux de Marseille, one of the largest French private sector construction companies, has a world-wide reputation, with such notable structures as the Pompidou Centre in Paris and the giant Antifer tanker harbour in the Channel to its credit. GTM was also involved in the construction of the world's largest dam, the Tarbela Dam in Pakistan, and in the Cabora Bassa Dam in Mozambique, Africa's highest dam.

The John Howard Group has built up a reputation for carrying out large and difficult marine civil engineering projects. It specialises in harbours, marine structures, airports and bridges as well as harbour and marine works in many overseas countries. Its associate, Howard Doris Ltd., has a construction yard at Kishorn, Scotland, where some of the largest structures operating in the North Sea have been built.

Raymond International Inc. is a multi-discipline, international engineering and construction company. Raymond is one of the world's most experienced companies in the engineering and construction of sunken tube tunnels, having specialised in these projects for the past 30 years. Two examples of Raymond's projects are the Chesapeake Bay bridge/tunnel crossing in Virginia, USA, and the San Francisco Bay (Bart) tunnel in California, USA.

Trafalgar House Group's construction companies have a history founded in the last century — Cementation, Trollope and Colls, Cleveland Bridge and Redpath Dorman Long have world-wide expertise in all fields of the construction and civil engineering industries.

Revenue

Continued from page 3

TRAFFIC forecasts for the EuroRoute crossing have been made by Coopers & Lybrand Associates, based partly on work completed in 1979 for the European Commission and partly on new work commissioned for the proposal. Forecasts take account of alternative growth rates for the U.K. and Continental Europe. Projected traffic on the EuroRoute crossing in the year 2000 is, for the central (low growth) case, 19.1 million passengers and 12.9 million tonnes of freight. For the high growth case, the projections for the year 2000 are 27.5 million passengers and 19.6 million tonnes of freight.

On the central case hypothesis, the road capacity of the crossing is reached in about the year 2025. At this time rail capacity is not expected to be fully used, and further growth in rail traffic could take place.

On the central case traffic projections, the internal rate of return of the scheme in real terms (i.e. after allowing for inflation) is estimated to be 7 per cent.

Finance

LAZARDS are financial advisers to the EuroRoute Group and to the Proposal and have exceptionally wide international connections and experience with major capital projects.

This proposal is bigger but simpler than its competitors. It can be built more quickly, with work spread to many locations and employs simple, well-proven techniques with minimum risks.

A three-stage building programme in which the overwhelming proportion of the finance is committed just prior to the second stage (Phase III) while an initial commitment of some full risk money is made prior to completion of legislative, Treaty and other formalities, will dramatically advance the date when the facility can be brought into service.

Equipment and supplies could be sourced almost throughout Europe and may easily be directed to and generate employment in distressed areas in Britain and France.

While the attitude of the French and British Governments is of paramount importance, the support of the EEC and of others will also be crucial. At least an Anglo-French Treaty will be necessary, in addition to the domestic enabling legislation.

Provided that the political decisions in London, Paris and Brussels are sufficient, it is considered that the EuroRoute proposal can be financed without any necessary recourse to public funds.

Jobs

TOTAL employment in the construction, shipbuilding and construction-related industries is estimated to be over 250,000 man-years. EuroRoute would give an estimated job total of 50,000 in the U.K. during the construction period, including subsidiary employment, with an equal number of jobs created in France.

OPINION

BACKING continues to grow for the view that any cross-channel link MUST serve road transport as well as rail.

● Recognition of the dominant part played by road freight in Britain's commerce with her biggest export market — Western Europe — is a most telling argument.

● Avoidance of the wasteful double-handling and marshalling yard congestion which would be involved in putting road vehicles on to trains is another.

● The flexibility and protection from disruption of the "belt-and-braces" road and rail option, is a third.

A policy view by the **Road Haulage Association** puts the matter beyond doubt: "Any permanent traffic link between Britain and the Continent will have to recognise the essential and unrivalled part which road haulage plays in the efficient commercial and industrial life of this country. Any solution must permit load carrying road vehicles to cross under their own power."

The motoring organisations have also made known their strong support for the EuroRoute-type solution.

The **AA** have written to the Transport Minister: "The Association believes that in looking to the future, it would be short-sighted to be thinking in terms of a fixed link that does not allow road vehicles to themselves drive between the South Coast and the continental mainland. The Association urges the Government to arrive at a decision along these lines and to undertake further studies to this end."

The **RAC's** first point in their submission to the House of Commons Transport Committee emphasised: "Since passengers and freight are predominantly carried by road transport, any new fixed cross-Channel link should permit motor vehicles to be driven across the Channel as well as or instead of providing for cross-Channel rail services." And in a later comment: "... modern technical developments could produce an impressive bridge or 'brunnel' allowing cars to be driven over or under the Channel — the only really effective way to meet traffic requirements in the '90s and the 21st century beyond."

Then, from the "RAC World" in February, 1982: "The RAC and motoring organisations in three Continental countries agreed at special talks in Paris to take joint action opposing plans for a rail-only Channel link."

Two current views from opposite sides of the Atlantic:

Time Magazine: "EuroRoute is a microcosm of some of the best plant building in the world today. This combines a somewhat visionary approach to what the world will need a generation hence with hard-headed engineering and financial know-how."

The Economist: "The link that makes most sense for motorists and freight is the brunnel. The Chesapeake Bay bridge-tunnel system, which has proved a tremendous economic boost to the Maryland shore, indicates it can be done ..."

Opinion polls in France and the UK on which type of permanent cross-Channel traffic link should be built, have shown a clear preference in both countries for a road-and-rail crossing, comprising bridges and tunnels, which would allow commercial and private vehicles to drive freely across.

The idea of a rail-only tunnel, or a rail tunnel with provision for loading cars and lorries on to trains for the journey, was decisively rejected in the polls, which were carried out in France by Sofres and in the UK by Marplan.

The two separate polls interviewed more than 3,000 people. The questions and the polls' findings are as follows:

In recent years a number of schemes have been put up to build a permanent link between Britain and the Continent. Which of the three main alternatives would you prefer?

		UK %	FRANCE %
Road and rail link with a combination of bridges and tunnels allowing cars and lorries to drive across	=	53	59
Rail-only tunnel with drive-on/drive-off facilities for cars and lorries	=	28	18
Rail-only tunnel with no provision for cars or lorries	=	11	6
Don't know	=	8	17

The French poll also tested the support for the concept of a fixed link across the Channel. Despite the UK's unilateral cancellation of the tunnel project underway in 1975, the result showed a large favourable majority in France.

The question asked in France was: Are you in favour of a link between France and Great Britain?

		%
Strongly in favour	=	18
Quite in favour	=	38
Quite opposed	=	9
Strongly opposed	=	5
Unconcerned	=	26
Don't know	=	4

Commented Ken Groves, Chief Executive of the EuroRoute Joint Venture, "That result is striking ... and when you add the fact that 89 per cent of freight traffic and 93 per cent of passenger journeys are by road in the UK, as the French would say, the case for EuroRoute is *formidable.*"

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