

DLR 1983 – 1987

Paul Ebbutt- A personal reflection



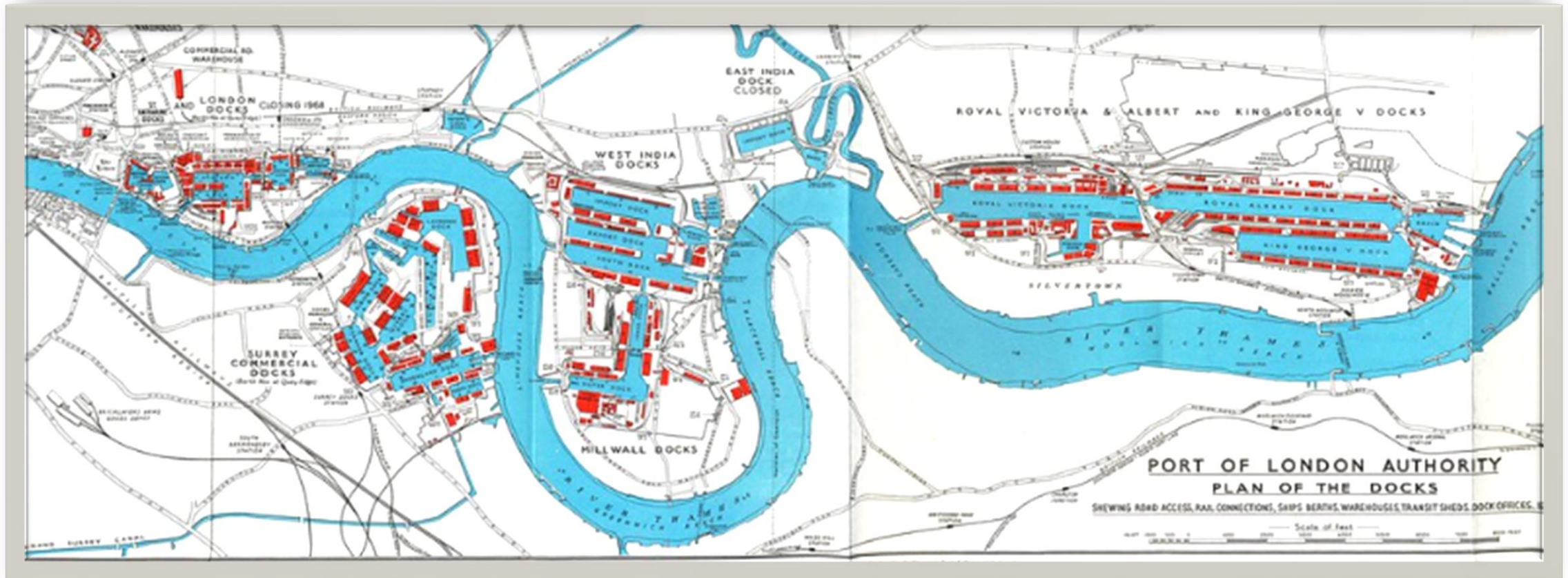
A Big Change



London Docks - rise & decline



London Docks (PLA)

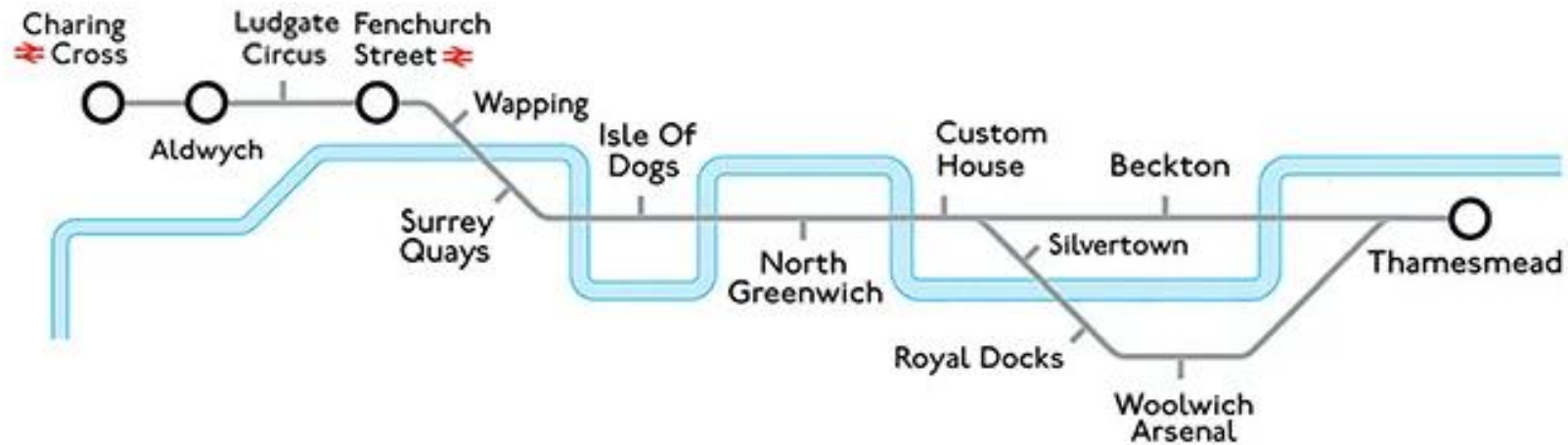


Baker
Street

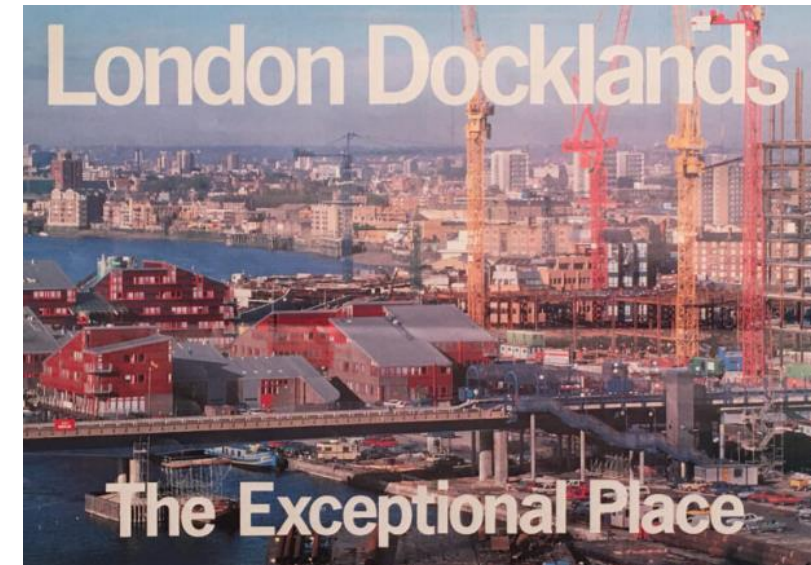


GLC

1974/76 study



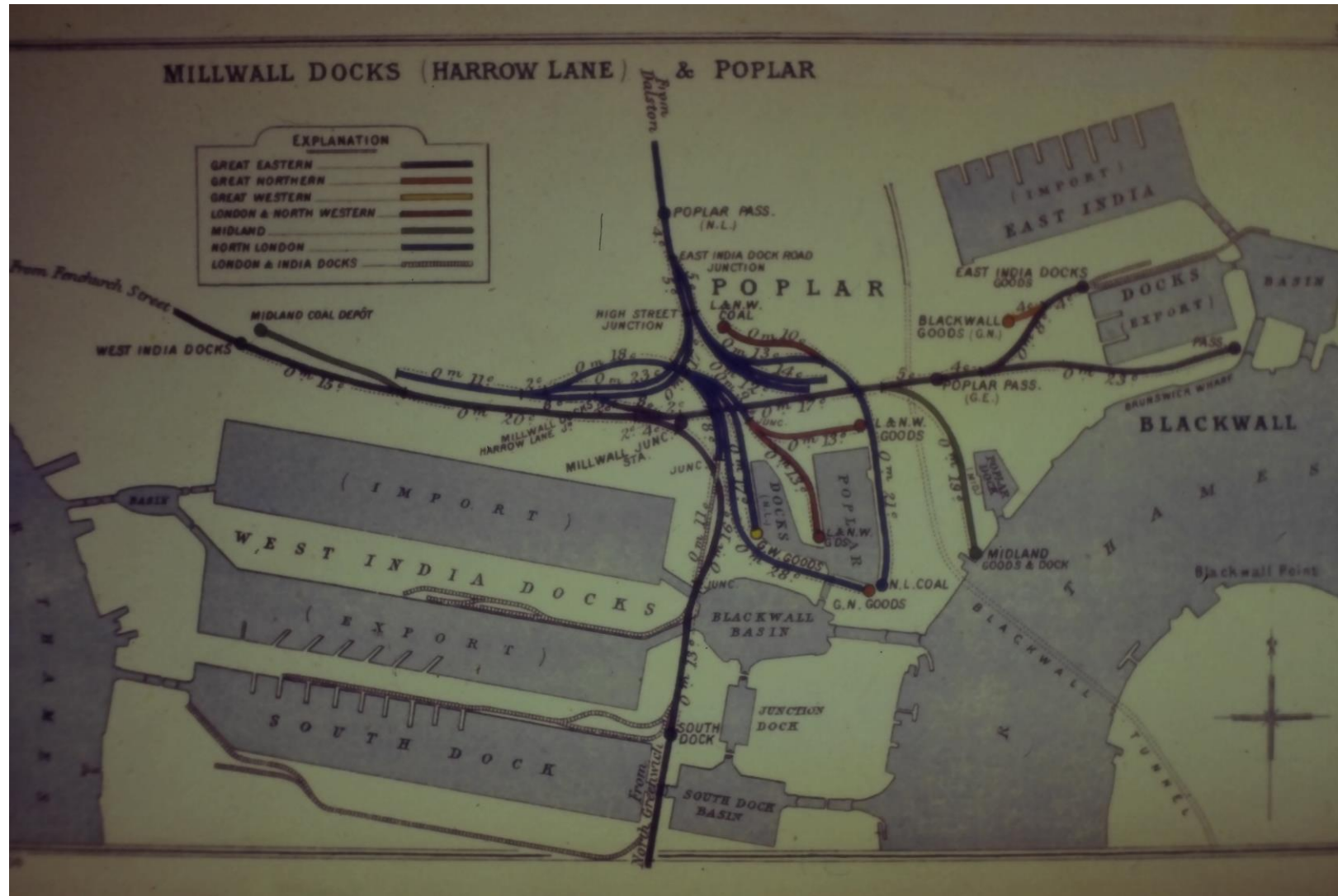
LDDC

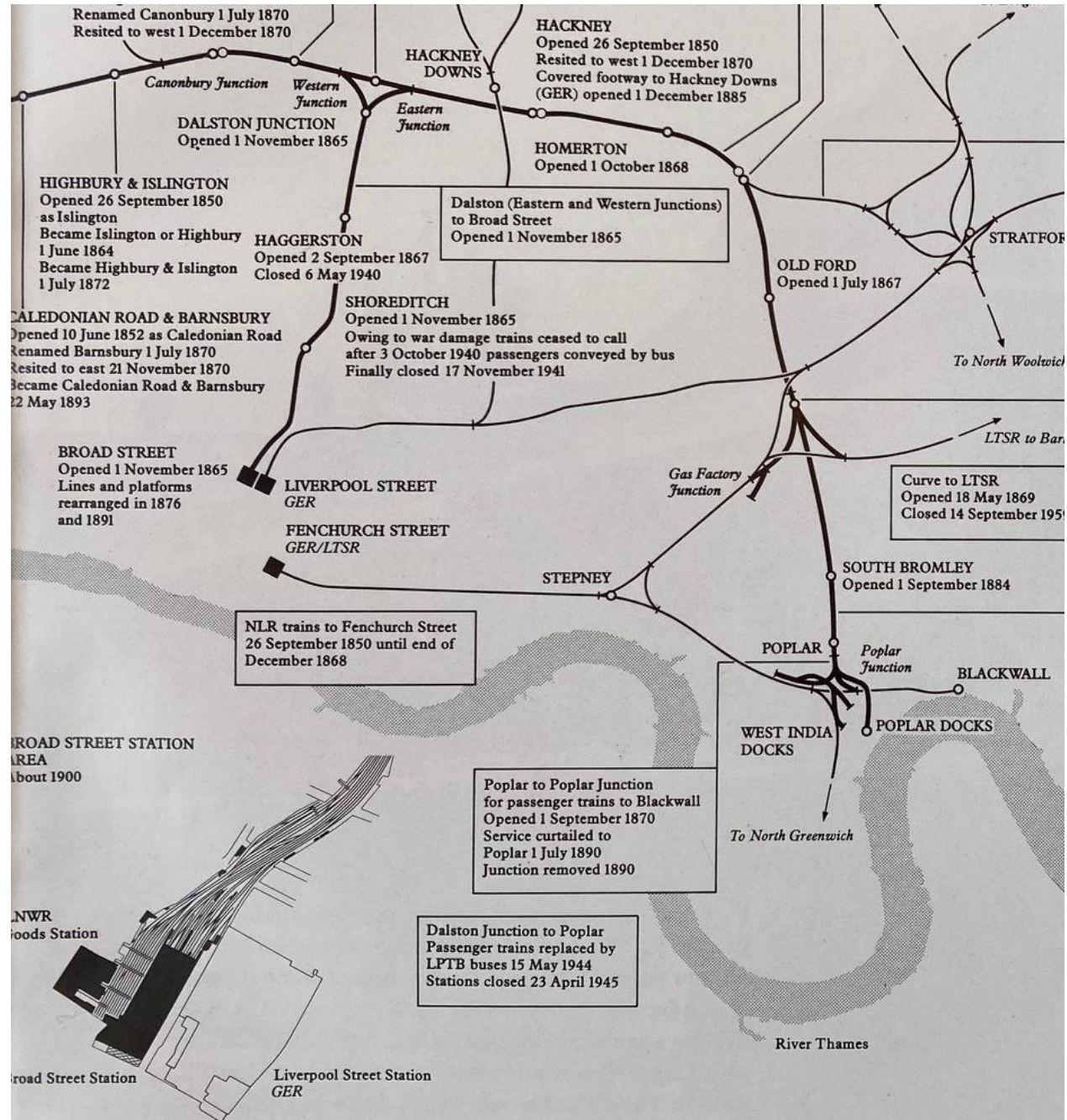


Dr Tony Ridley – Managing Director (Railways) 1980



Docklands redundant railway corridors





Poplar docks



1983



Limehouse Viaduct





North Greenwich / Island Gardens



Poplar

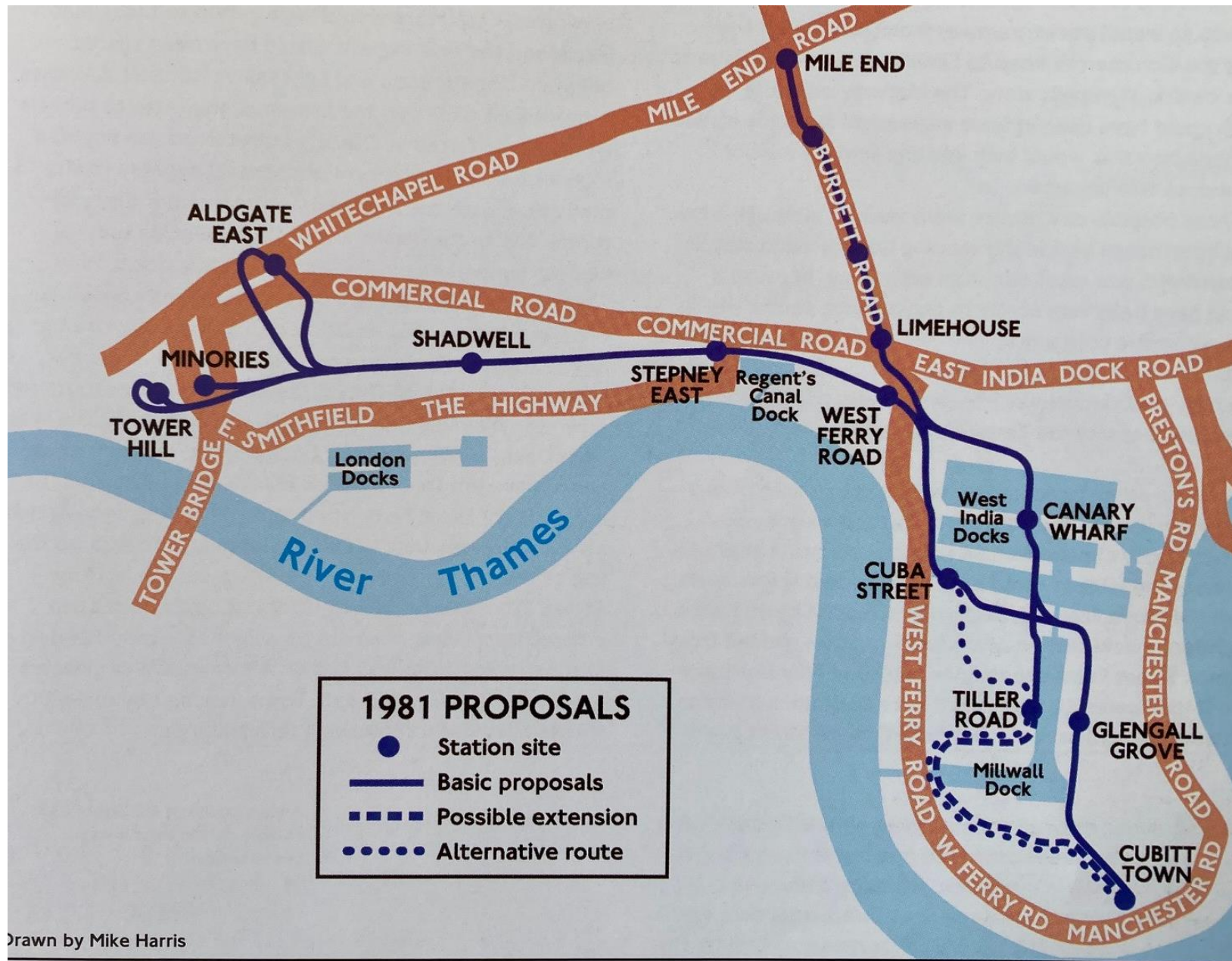


Bow – former NLR Bow works

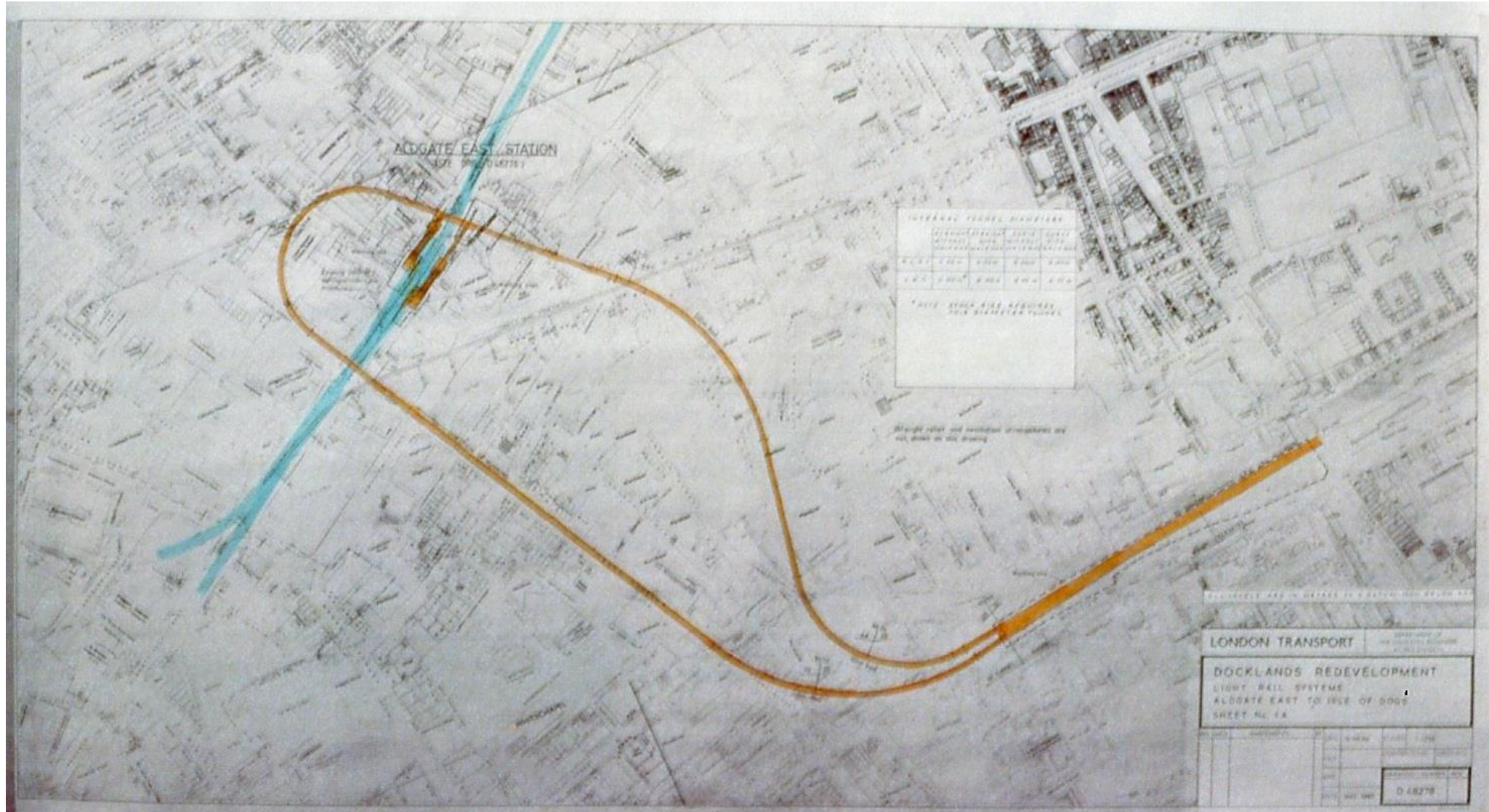


NLR Bow

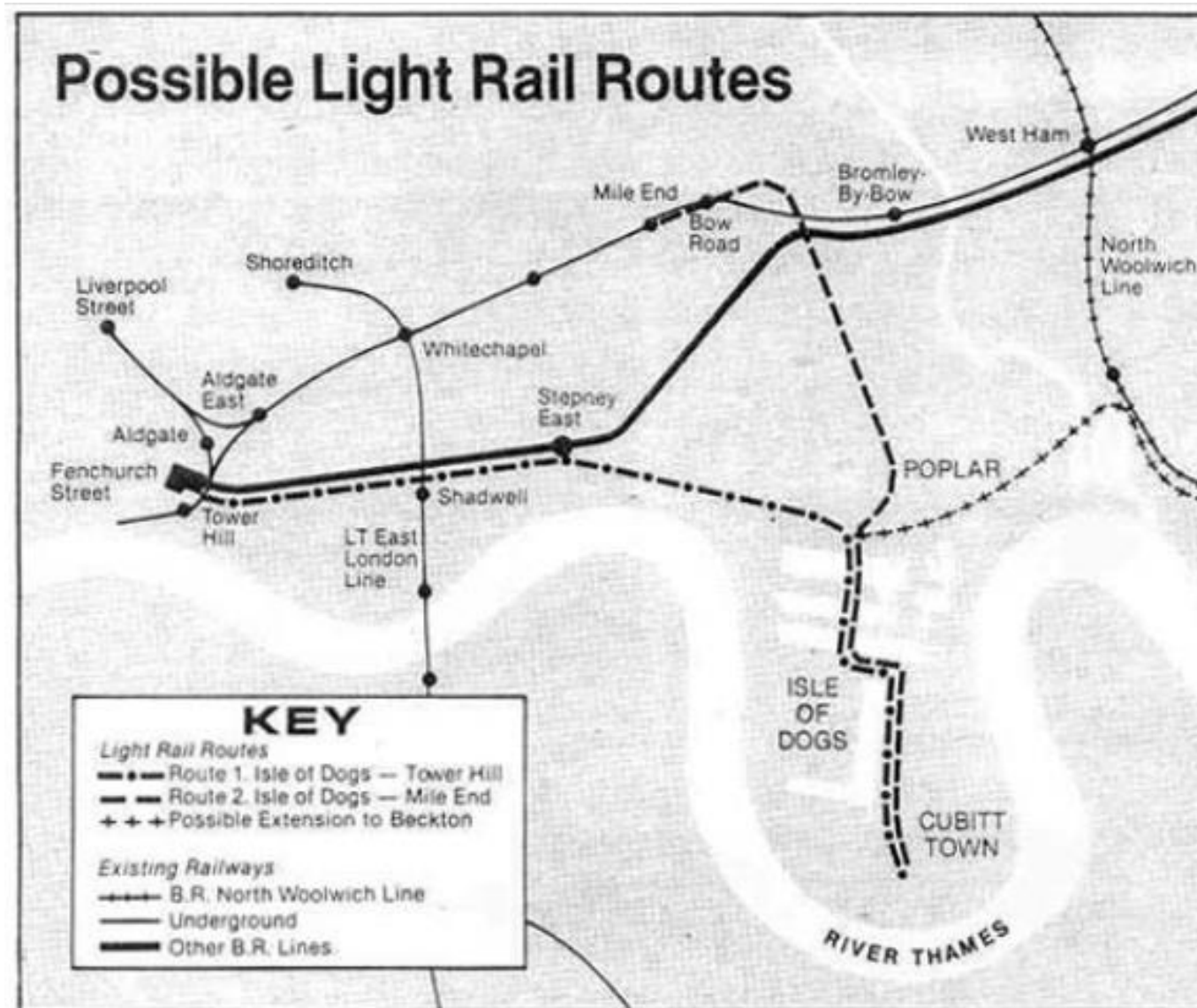


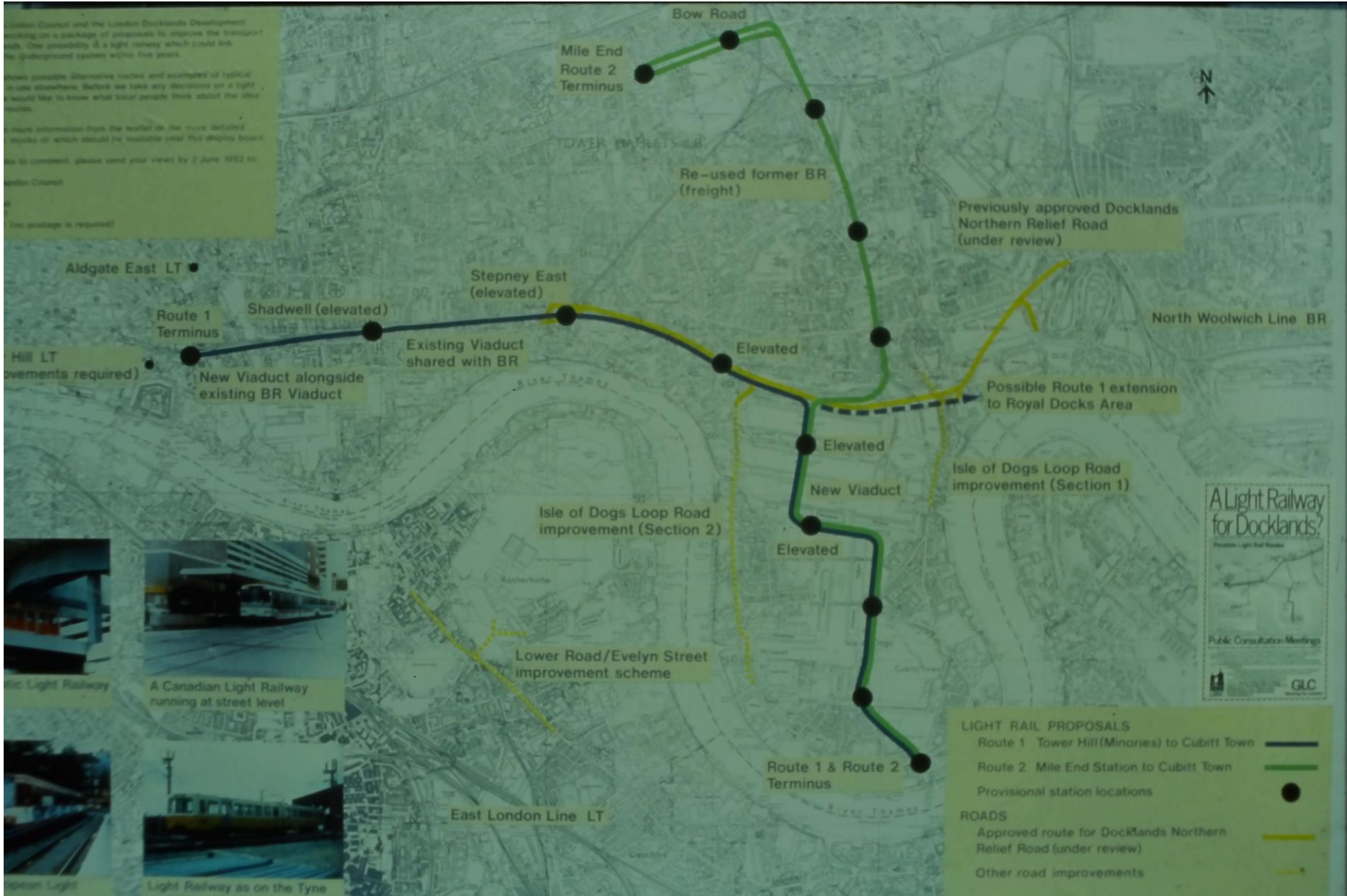


Aldgate Loop Option



LDDC / GLC consultation for Light Rail 1983

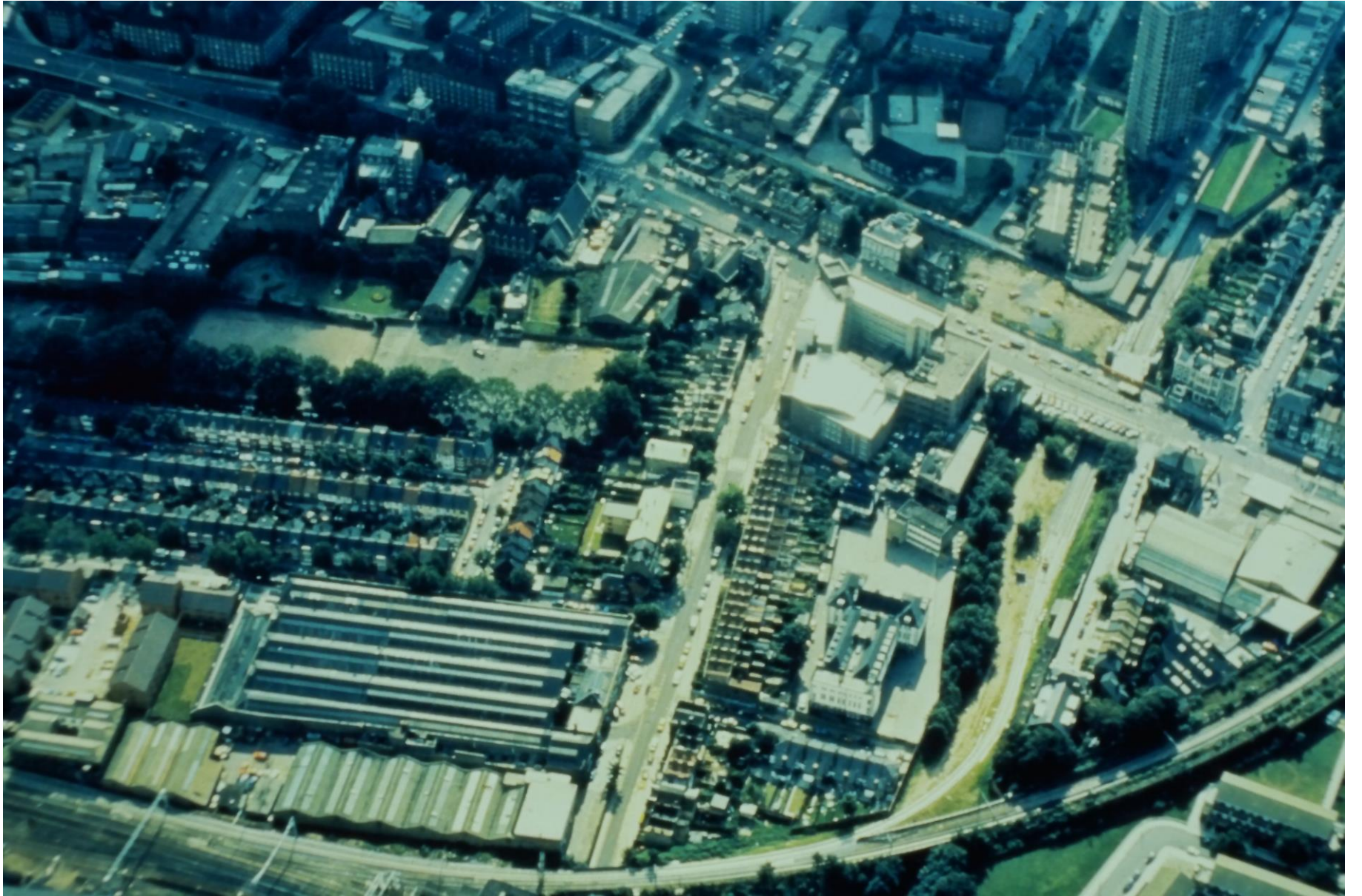




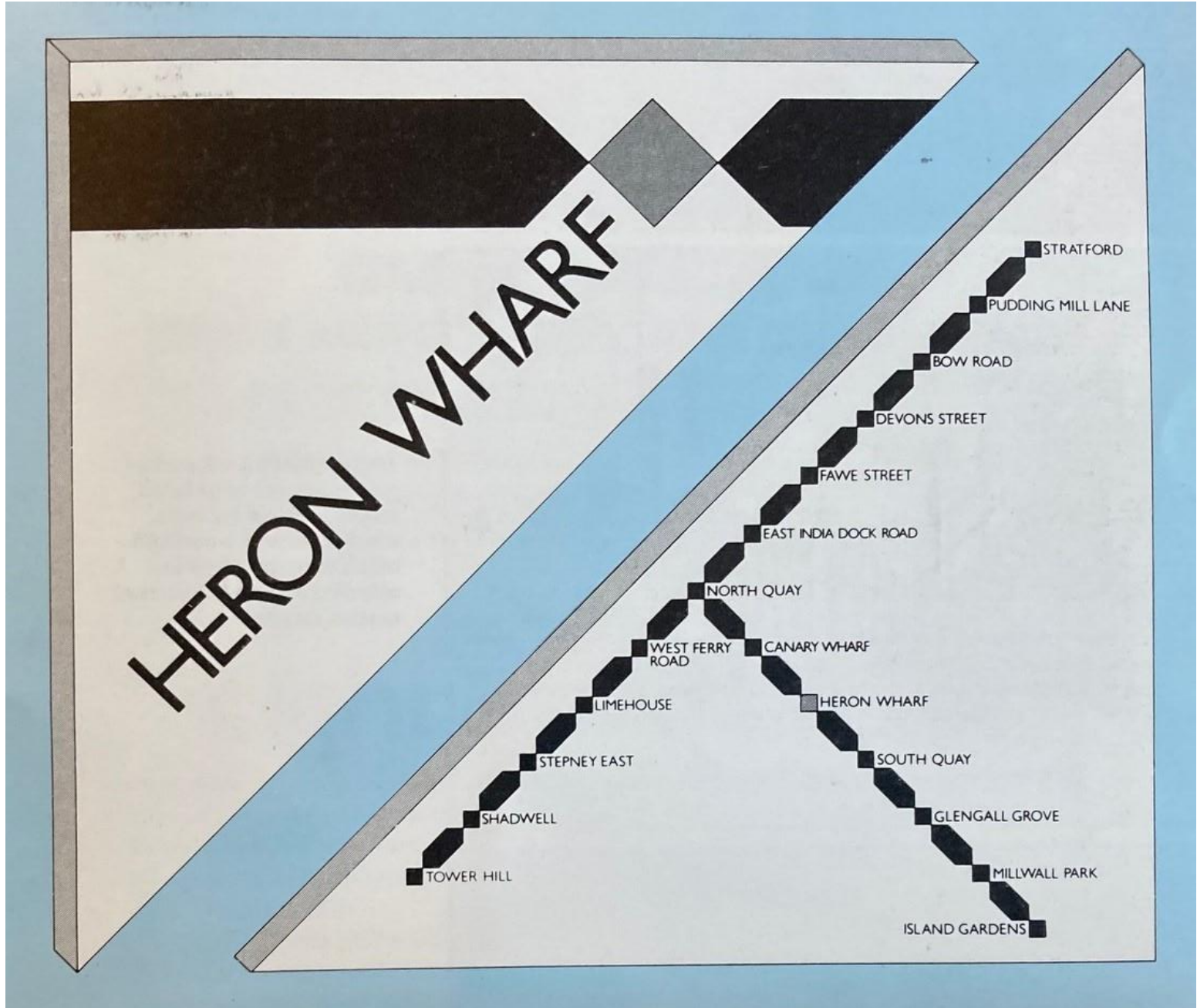
Transit options 1982/3



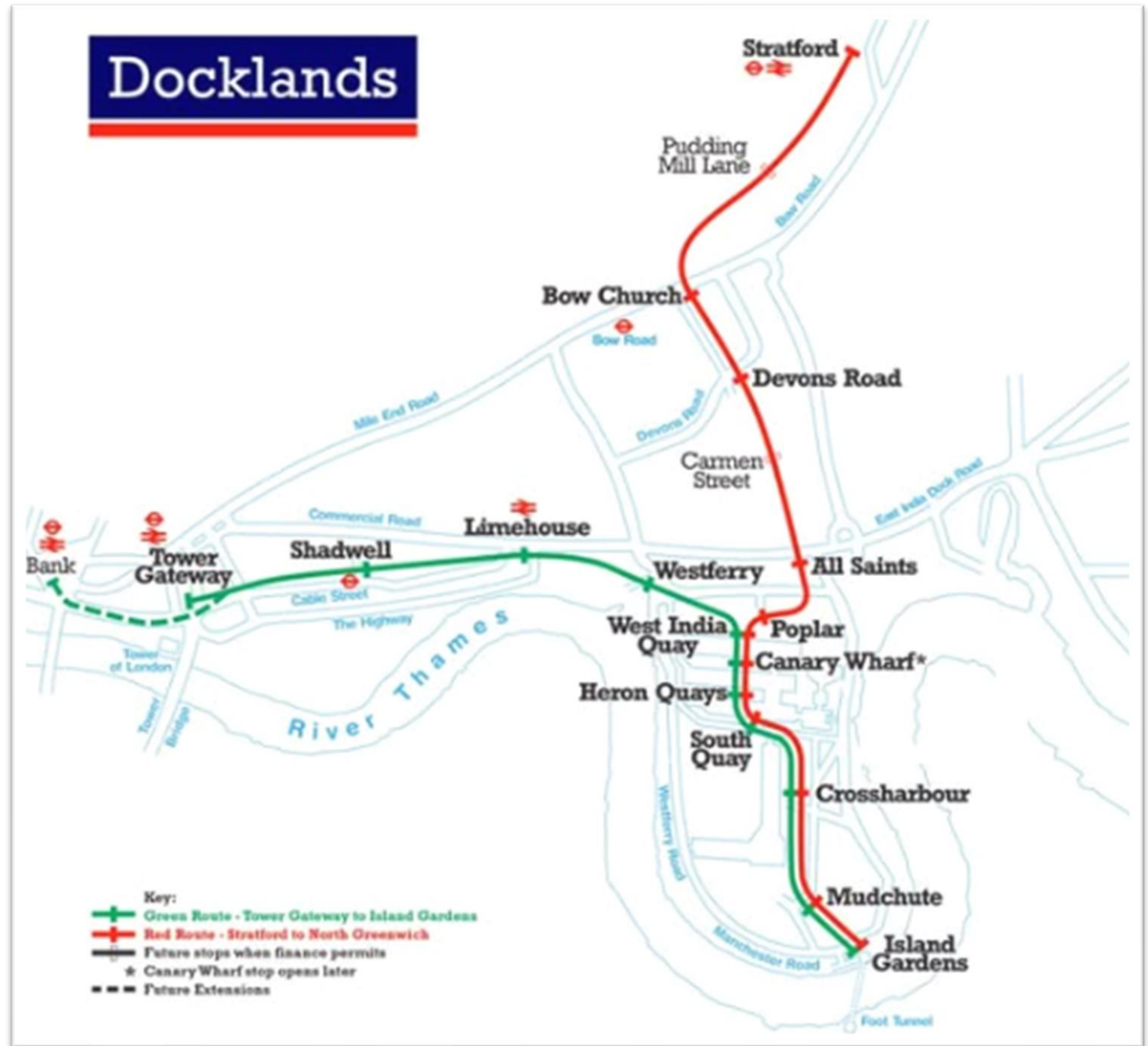
Bow Curve



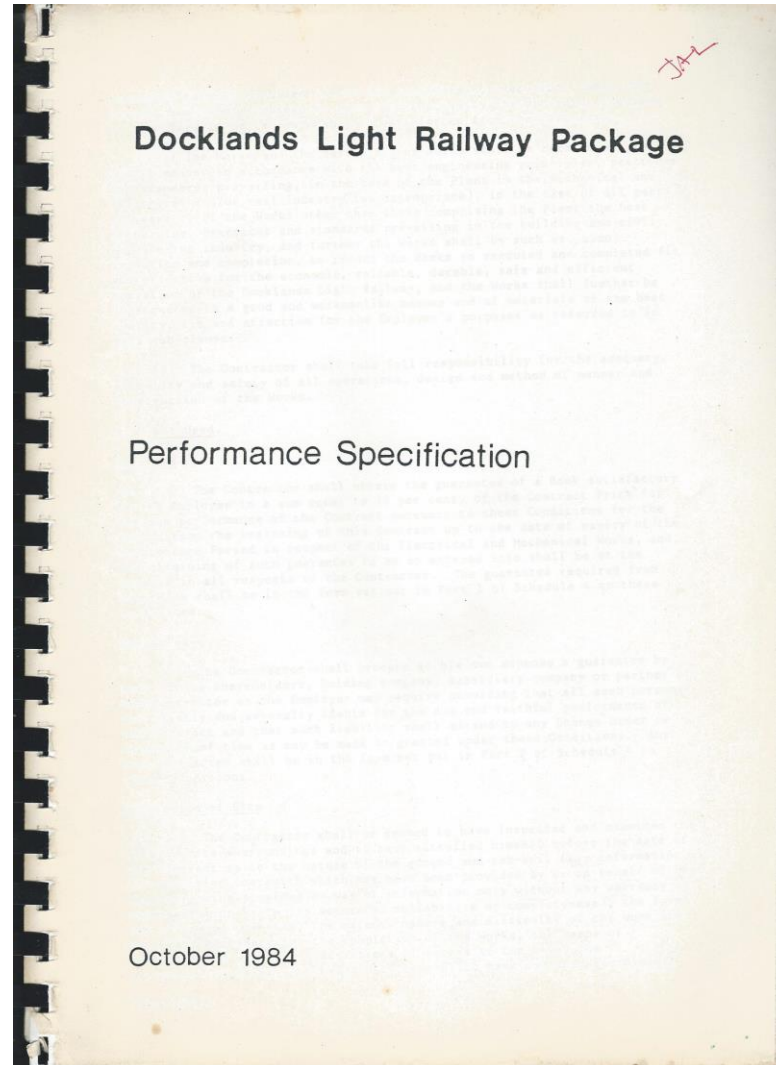
DLR ambition & Image 1984



DLR Route For Tender 1984



DLR 1984 contract



PERFORMANCE SPECIFICATION 400 - Statement of Design Requirements

405 Bridgeworks (Contd)

(k) Live loads

Railway live loads

The railway live load shall be appropriate to the vehicle offered, but shall not be less than 0.5 RL in accordance with Clause 8 of BS 5400 : Part 2 with the following exceptions:

(i) Clause 8.2.2

The two concentrated loads shall each be of 130kN
They shall have a spacing along the track of 1.8m

(ii) Clause 8.2.5

At rail expansion joints the concentrated
nominal load will be taken as 112kN

Elsewhere the concentrated nominal load
will be taken as 73kN

(iii) Clause 8.2.8

As for full R.L. loading the nosing load
shall be taken as 100kN

(iv) Clause 8.5.2

(1) Para (a): Need not be considered

(2) Para (b): Each concentrated design
load will be 80kN

(3) Para (c): The vertical line design
load will be 20kN

(l) Fatigue

New structures shall have a fatigue life of 120 years when checked against the requirements of BS 5400: Part 10. The load spectra shall be based on axle loads and spacing of the proposed vehicles and the defined service pattern and frequency.

(m) Shipping impact loads

(i) Millwall and West India Docks

For bridges over navigable waterways supports and fendering systems shall be designed to withstand the impact from a 200 ton dead weight barge (total mass 255 tonnes) moving at 0.5 metres per second.

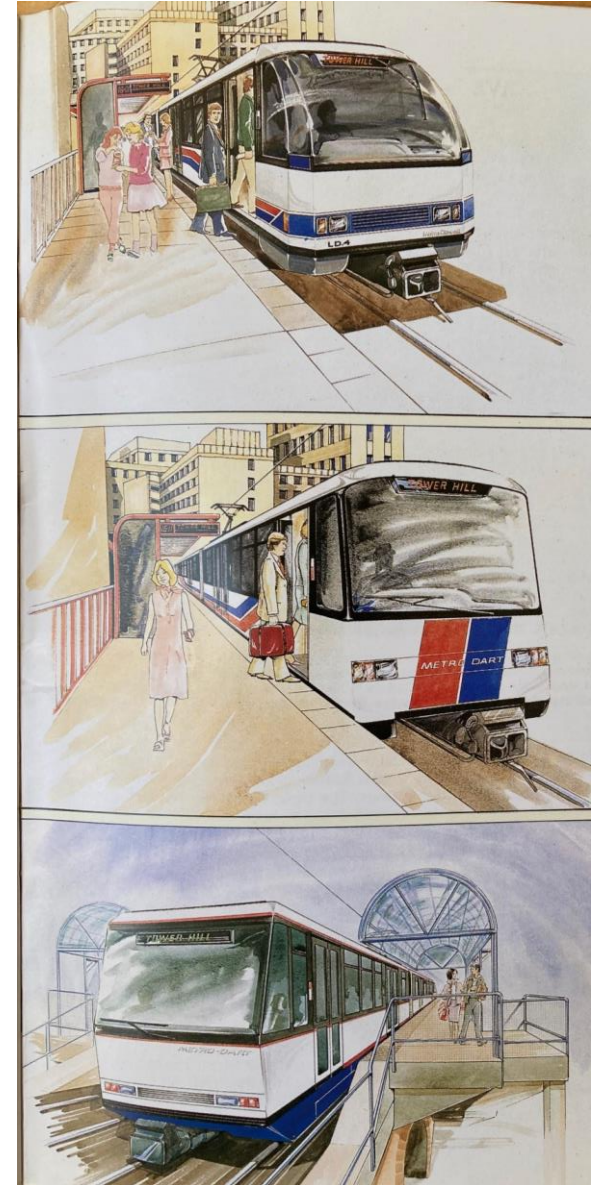
0027C

85

* The loading may be reduced below 0.5 RL subject to using a loading which would accommodate vehicles of a similar performance specification or appropriate service



Potential ATO Systems

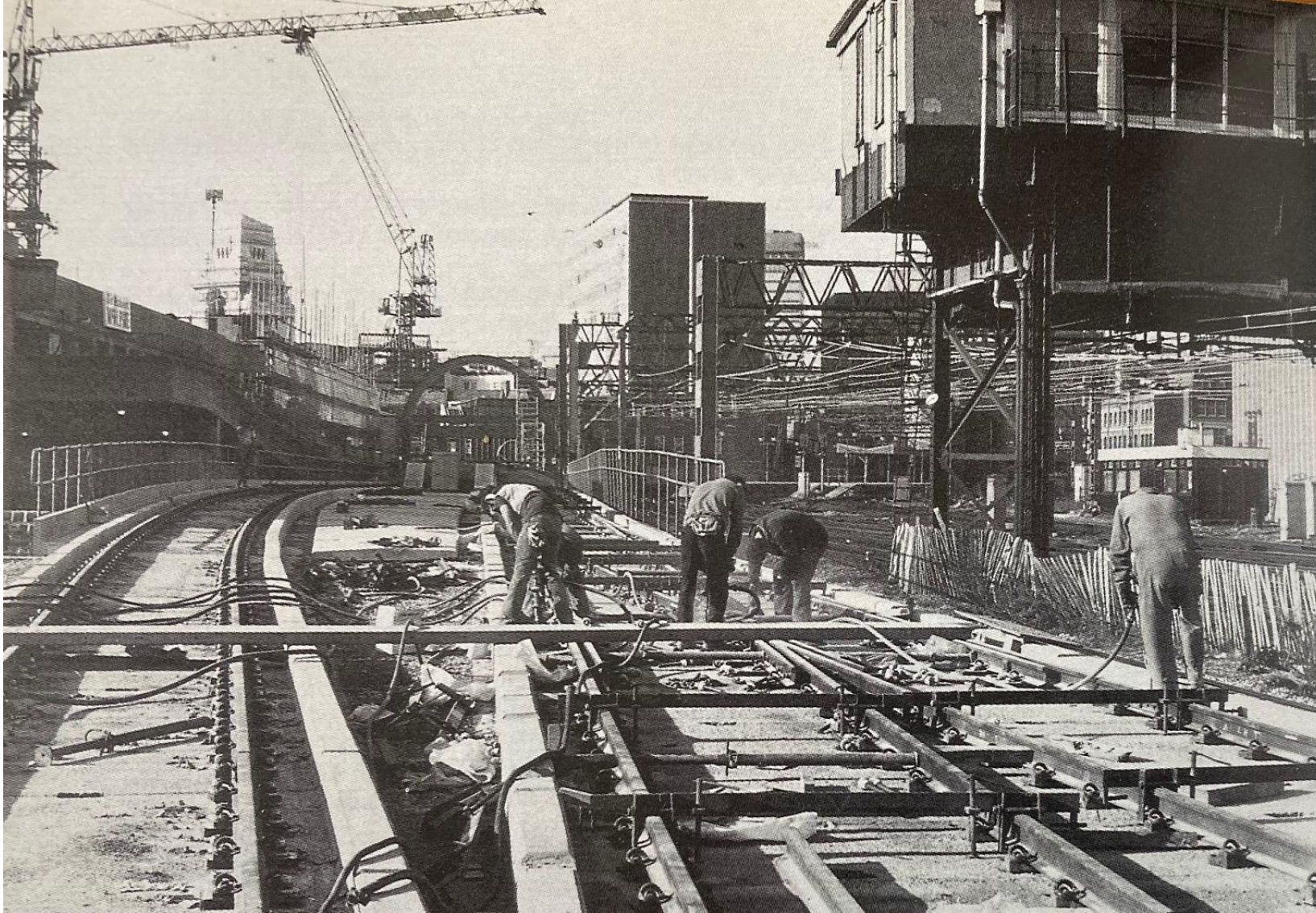


Selected package – GEC / Mowlem

- Award end of summer 1984
- Design & build - £64M
- Automated Railway
- 12 route km
- 15 new stations
- 11 trains
- Low Con rail system
- 8 Train service
- 1760 passengers per hour capacity
- Maintenance facilities



Construction - Tower Gateway



Limehouse / Stepney East



Limehouse Basin



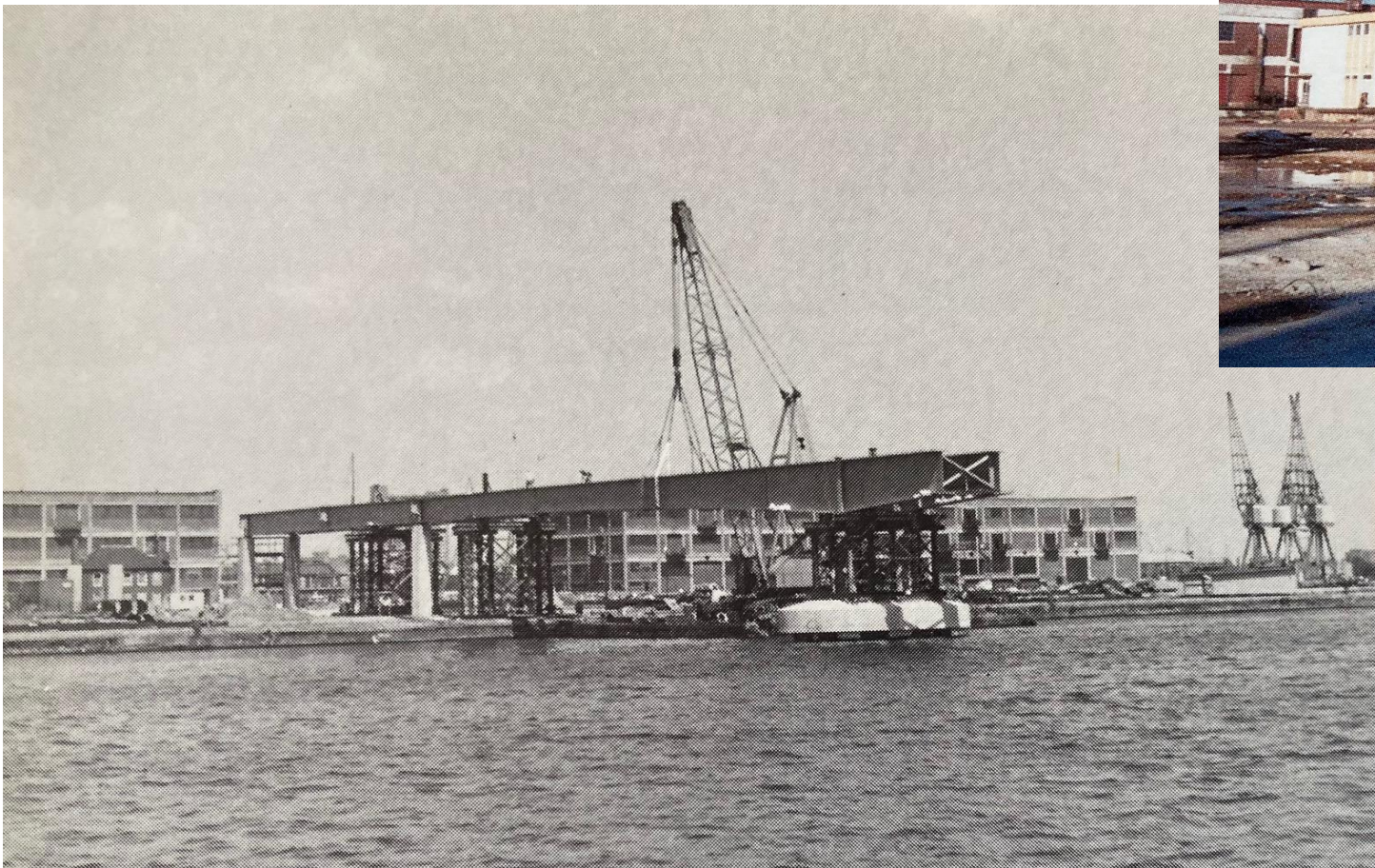
Charlie Browns – West Ferry



Docks Crossing



Docks Crossing



Typical viaduct structure





Island Gardens



Devons Road



Devons Road



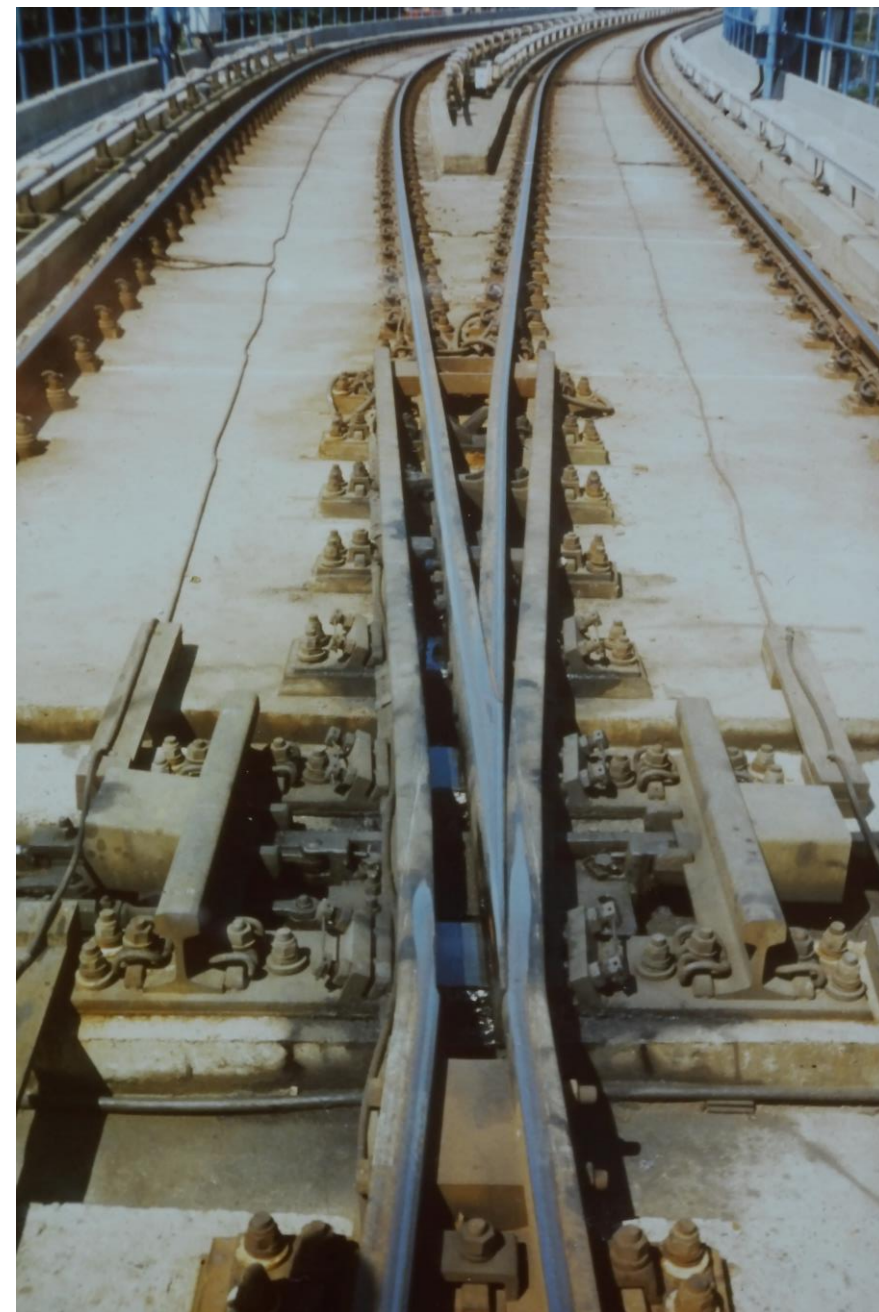
Track laying



Bow to Stratford



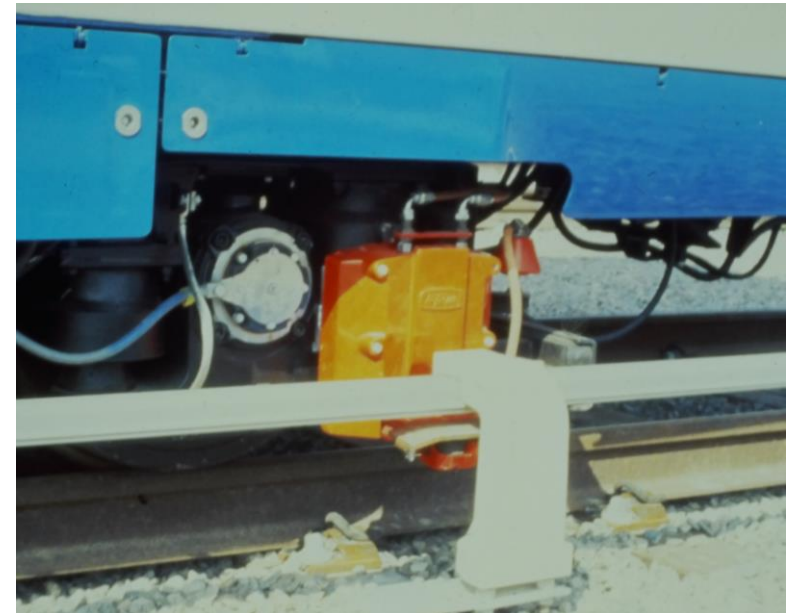
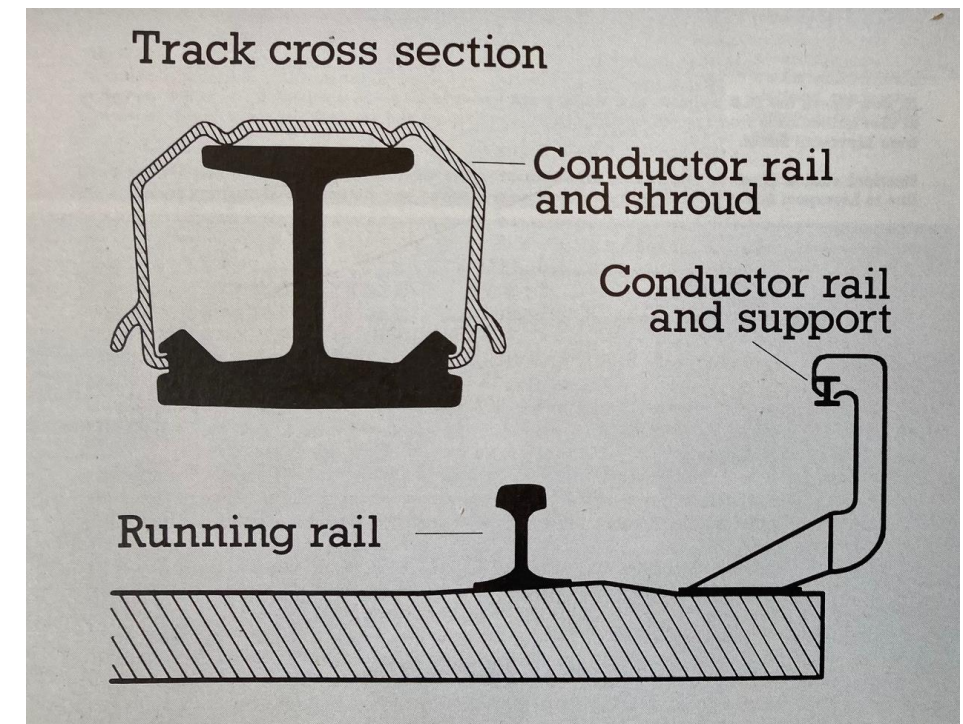
Track



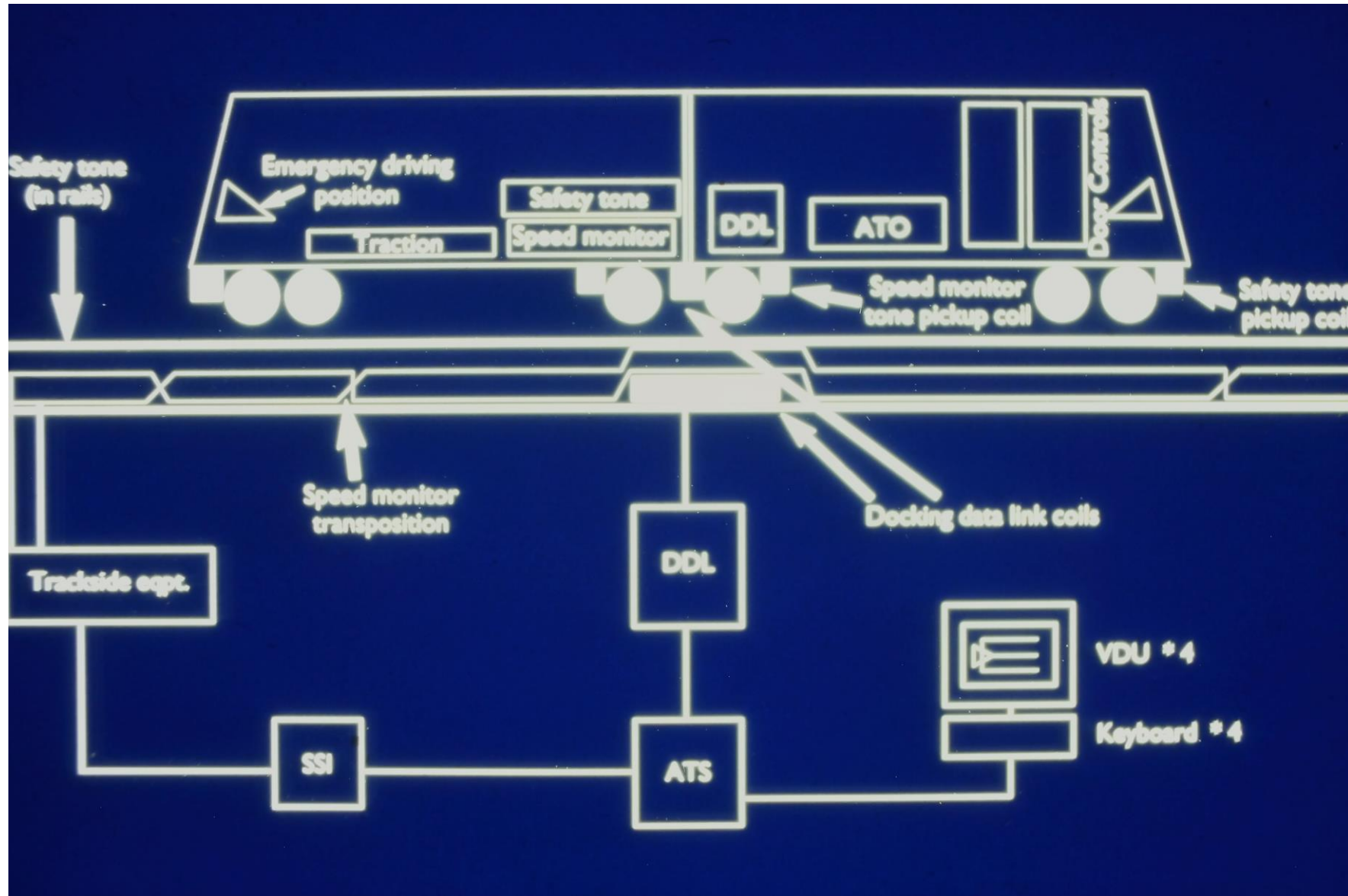
The Trains



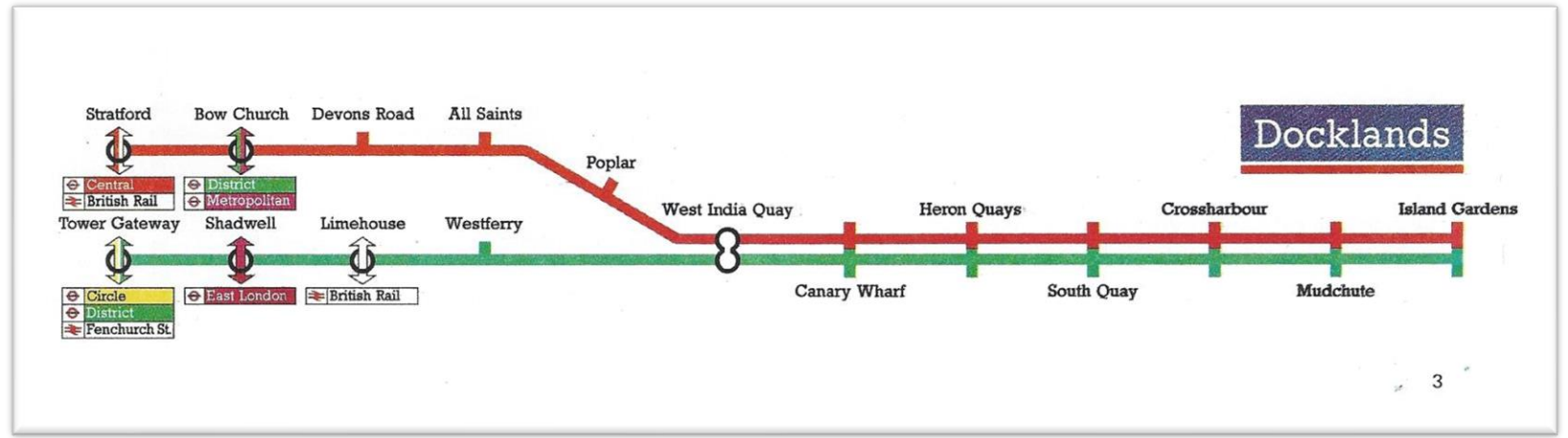
Conductor Rail



The ATO Control System - Summary



Completion

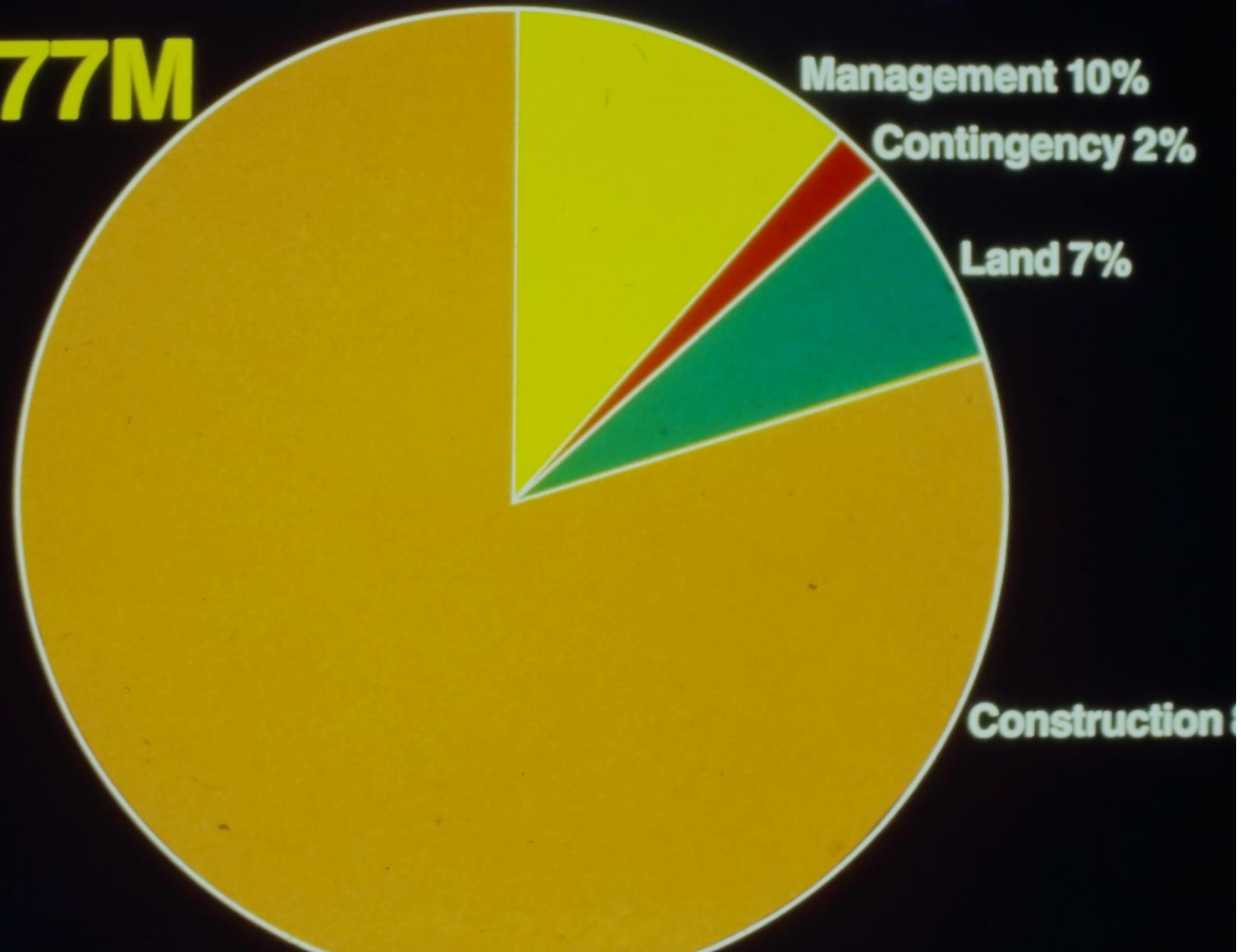


- DLR Public Opening August Bank holiday Monday 1987
- Royal opening one month earlier 30 July 1987



Docklands Light Railway

Cost £77M



81 %

Tower Gateway



OMC - Poplar



Poplar – Delta Junction



Docks Crossings



Elevated station - South Quay



Mudchute



Island Gardens



Poplar to Bow Church



Stratford



Ticketing



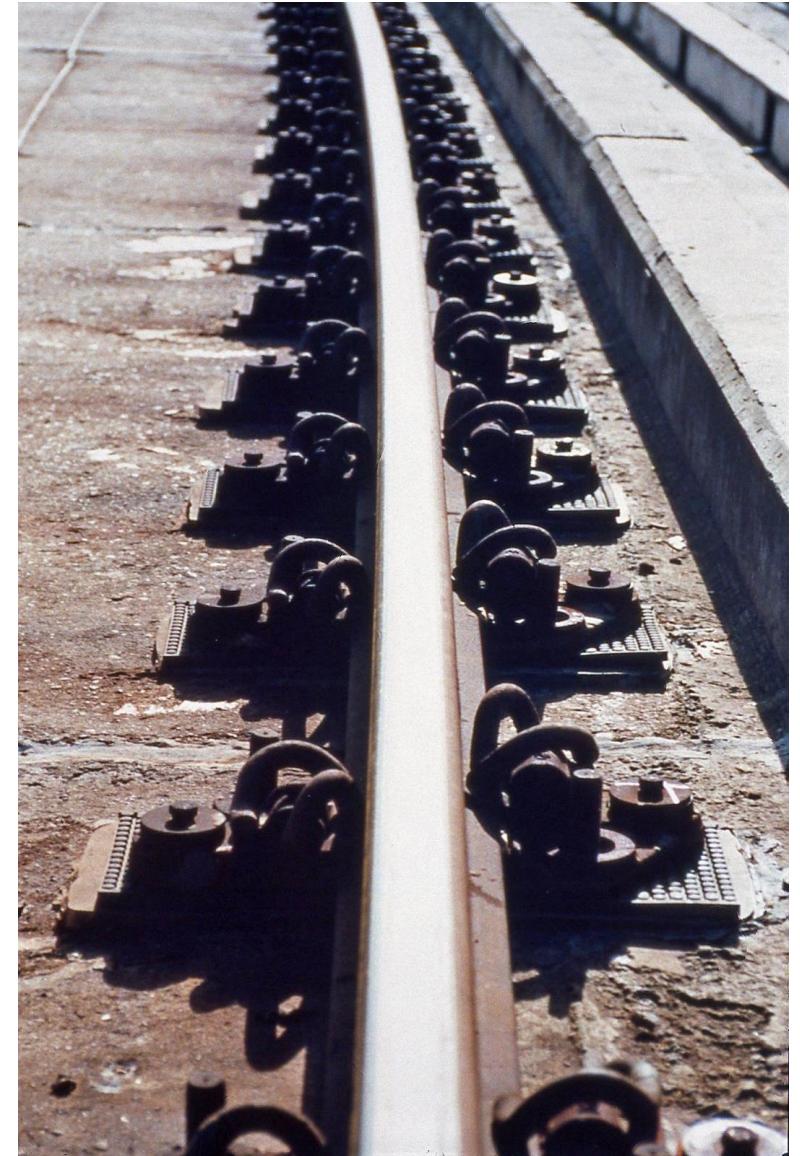
Early Operations experience

- Wheel / rail performance - ATO
 - issue 80 lb rail and wheel profile
- Noise levels on viaducts
- Track failures – bolts & clips
- Train bunching
 - service regulation - poor
- Folding Train doors
- Ticket machine reliability
- Lifts performance
- Gapping
- Flexible staff



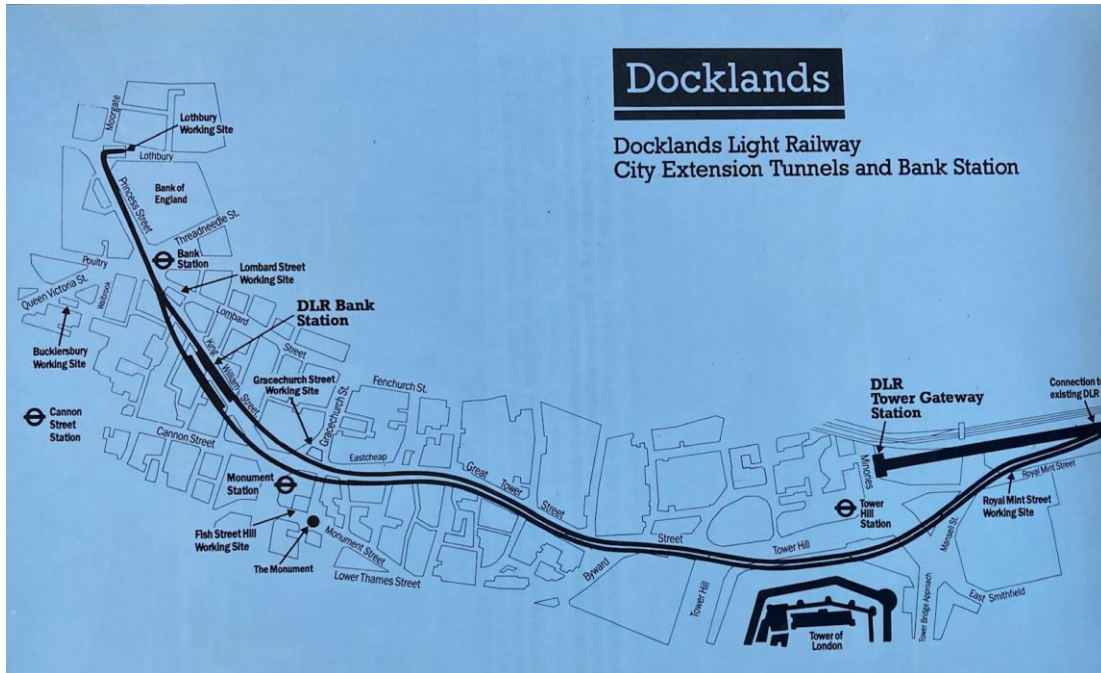
Early enhancements

- Signalling UPS
- Lift labelling
- Tower Gateway congestion control
- Control room technician role
- Damp weather control + first train in manual.
- Noise levels from track on viaducts – alternative track assembly
- Removal of ticket validators



AND Then....

- City Extension – Bank
- Canary Wharf / IOD upgrade
- Beckton



So, what do we prefer?



Any
Questions?

