Regional Metro Services to South Wales

RM Services at HS Mk1A/Mk2

Following the referendum on EU membership and the decision to disengage from the EU, several changes have been made to the plans for HS rail, most importantly, abandoning GC-gauge, and building all new infrastructure to standard UK loading gauge. The Mk1A versions of the various Route and Service Plan articles of the HS routes expound, inter alia, the consequences of this. In some cases (for differing reasons) a Mk2 version has been produced also. This all has, in most cases, very little impact on the associated RM services. The present article is concerned closely with HS4 and, to a lesser extent, with HS7. It assumes the latest, Mk2 versions of each. The most notable change is the removal of the distinction between GC-gauge and CC services. A new station is proposed at Reading Parkway, and all the services (HS and RM) terminating at Cardiff, now proceed to the airport, and terminate there.

The Purpose, Background and Method

This is one of a series of articles which describes the services to be provided on classic routes, when their corresponding HS routes have been brought into operation. The series XXX Service Plans also does this, but there each article is focused on a particular classic route, giving detailed service plans exactly corresponding to those of the corresponding HS route. It is the piecemeal development of the HS route, opening by discrete stages, which determines when the service plans, of both HS and classic routes, are changed. Detailed specimen timetables may also be defined.

In the present series, the focus is on a particular region, and describes the services on the various classic routes serving that region. The focus is on interconnections, rather than timetables, emphasising the network aspects. Those High Speed services which serve that particular region are also included.

The express services of the future will be provided by the HS network (of course!) equally importantly offering very high capacity. The services on the classic network are of two types, Classic-Compatible and Regional Metro. Classic-Compatible services are HS trains for most of their journey, when traveling on a HS route, but travel on a classic route (at rather lower speed) for the rest of the journey. The idea is to provide HS services for important locations off the HS route, typically at the 'country end' of a HS route serving London.

Regional Metro (RM) trains are either semi-fast or stopping. All are regular interval services, generally twice per hour, every train having the same stopping pattern. The semi-fasts stop at all significant locations, cities, towns, larger villages and parkway stations, and making connections into and out of HS services at all relevant interchange points (the connections being cross-platform wherever this is practicable). The semi-fast services can cover quite long distances, but the expected and intended usage is that individual passengers travel only part of the way with them, possibly switching to HS for the remainder. It is expected to be unusual for passengers to travel the whole route of a RM semi-fast service, except, perhaps, for pleasure, or, (as many people do,) to avoid changing trains when accompanied by luggage.

Regional Metro Stopping (RMS) services serve all the stations along a particular section of route, connecting into or out of the accompanying RM service (and possibly HS also) at one or both ends of the section, as appropriate.

Larger urban areas may also be served by urban metros. These offer high frequency, all stations services (usually, but certain services may have a non-stop component). These will certainly interact with RM services at the boundary stations of the (urban) metro, and usually at important city centre stations also.

The present article describes services in South Wales, consisting, for the present purposes, of the area bounded by Swansea to the west, the Severn Tunnel to the east, and Merthyr Tydfil to the north – i.e. Monmouthshire and Glamorgan for traditionalists (completely accurate too – the modern spec. would have to be: Merthyr Tydfil, Caerphilly, Blaenau Gwent, Torfaen, Monmouthshire – a different one, Newport, Cardiff, Vale of Glamorgan, Bridgend, Rhondda Cynon Taff, Neath Port Talbot, and finally Swansea). One extra bit is included – the line from Swansea to Carmarthen (for London trains). Within this area is the South Wales Metro, based on Cardiff but covering all the Valley Lines and the South Wales main line between Cheltenham and Swansea, and a separate article has been produced for this containing further, relevant information.

Maps are included, of all the services within South Wales, and, to a smaller scale with correspondingly less detail, of all the services direct to South Wales from other regions.
(The custom colour used for South Wales services, pure red, has R/G/B values 255/0/0.)

Carmarthenshire Services

There's only one (in the present context) – the HS4 service terminating at Carmarthen:

- 2tphH (HS4) Paddington – Old Oak Common – LHR Interchange – Reading Parkway LL – Swindon – Bristol Parkway – Newport – Cardiff – Cardiff (Rhoose) Airport – Bridgend – Port Talbot – Neath – Swansea (reverse) – Llanelli – Carmarthen

The Services Terminating at Swansea

Most of the South Wales services from other regions, (as opposed to South Wales local services, which are strongly focused on Cardiff,) are those which terminate at Swansea, including HS4's Norwich – Swansea via London service, and HS7's Norwich – Swansea via Birmingham service. All of these also serve all the main stations between Newport and Swansea. The HS services are:

- 2tphH (HS4) Norwich – Beccles – Ipswich HS – Colchester – Chelmsford – Shenfield HS – Stratford HS South – Euston Cross – Old Oak Common – LHR Interchange – Bristol Parkway HS – Cardiff HS – Cardiff (Rhoose) Airport – Port Talbot – Swansea
- 2tphH (HS7) Norwich – Peterborough – Nottingham – Derby – Birmingham Interchange – Worcester Shrub Hill – Cheltenham Spa – Bristol Parkway HS – Cardiff HS – Cardiff (Rhoose) Airport – Port Talbot – Swansea
- 2tphH Paddington – Old Oak Common – LHR Interchange – Reading Parkway LL – Swindon – Bristol Parkway – Newport – Cardiff – Cardiff (Rhoose) Airport – Bridgend – Port Talbot – Neath – Swansea (reverse) – Llanelli – Carmarthen

The RM services are:

- 2tphR Stalybridge – Ashton-under-Lyne – Manchester Victoria – Salford Central – Eccles – Warrington Bank Quay – Helsby – Chester – Wrexham General – Ruabon – Chirk – Gobowen – Shrewsbury – Church Stretton – Craven Arms – Ludlow – Leominster – Hereford – Abergavenny – Pontypool & New Inn – Cwmbran – Newport – Cardiff – Cardiff (Rhoose) Airport – Bridgend – Port Talbot – Neath – Swansea
  [This service alternates between Stalybridge and Newport with the service from Stalybridge to Plymouth, which reverses in Newport.]
- 2tphR Plymouth – Ivybridge – Brent – Totnes – Newton Abbot – Teignmouth – Dawlish – Exeter St. David's – Cullompton – Tiverton Parkway – Taunton – Bridgwater – Highbridge – Weston Super Mare – Bristol Temple Meads – Filton Abbey Wood – Newport – Cardiff – Cardiff (Rhoose) Airport – Bridgend – Port Talbot – Neath – Swansea
  [This service alternates between Plymouth and Newport with the service from Plymouth to Stalybridge, which reverses at Newport.]
- 2tphR Stalybridge – Ashton-under-Lyne – Manchester Victoria – Salford Central – Eccles – Warrington Bank Quay – Helsby – Chester – Wrexham General – Ruabon – Chirk – Gobowen – Shrewsbury – Church Stretton – Craven Arms – Ludlow – Leominster – Hereford – Abergavenny – Pontypool & New Inn – Cwmbran – Newport (reverse) – Filton Abbey Wood – Bristol Temple Meads – Weston Super Mare – Highbridge – Bridgwater – Taunton – Tiverton Parkway – Cullompton – Exeter St. David's – Dawlish – Teignmouth – Newton Abbot – Totnes – Ivybridge – Plymouth
  [This service does not, of course, terminate at Swansea, but is intimately linked with the above two services which do, effectively doubling the frequency of each to Swansea.]
- 2tphRS Shrewsbury – Church Stretton – Craven Arms – Broome – Hopton Heath – Bucknall – Knighton – Knucklas – Llangynllo – Llanbister Rd. Dolau – Pen-y-Bont – Llandrindod Wells – Builth Rd. – Cilmeri – Garth – Llanwrtyd Wells – Sugar Loaf – Cynghordy – Llandovery – Llanwrda – Llangadog – Llandeilo – Ffairfach – Llandybie – Ammanford / Tirydail – Pantyffynnon – Pontardulais – Gorseinon – Gowerton (new connection) – Swansea
  [Most of these station stops are by request only. The only mandatory stops are at the passing stations – Llandrindod Wells, Llanwrtyd Wells, Llandovery and Llandeilo, with a further passing station desirable at Llangynllo or Knucklas.]

The point about the service alternations noted above, (note that, likewise, the Swansea – Stalybridge service alternates between Swansea and Newport with the Swansea – Plymouth service,) is that, by synchronising the times at Newport, a service of 4tph is provided between each pair of destinations, 2tph directly and 2tph with a single change at Newport (giving the same end-to-end timings as the through service).

Services Based on Cardiff

All of the RM and HS services in the above lists serve Cardiff also.

Cardiff is the primary focus of the South Wales Metro. The key station is Cardiff Central, where extensive cross-platform interchange facilities are provided. Those services from other regions which terminate at Cardiff always provide a cross-platform interchange into one of the above services through to Swansea.

The HS services are:

- 2tphH (HS4) Norwich – Beccles – Ipswich HS – Colchester – Chelmsford – Shenfield HS – Stratford HS South – Euston Cross – Old Oak Common – LHR Interchange – Bristol Parkway HS – Cardiff HS – Cardiff (Rhoose) Airport – Port Talbot – Swansea
- 2tphH (HS7) Norwich – Peterborough – Nottingham – Derby – Birmingham Interchange – Worcester Shrub Hill – Cheltenham Spa – Bristol Parkway HS – Cardiff HS – Cardiff (Rhoose) Airport – Port Talbot – Swansea
- 2tphH (HS4) Dover Priory – Canterbury East – Faversham – Sheerness – Grain – Southend HS – Southend Airport – Shenfield HS – Stratford HS South – Euston Cross – Old Oak Common – LHR Interchange – Reading Parkway LL – Swindon – Bristol Parkway HS – Cardiff HS – Cardiff (Rhoose) Airport
- 2tphH (HS7) Birmingham Curzon St. – Worcester Shrub Hill – Cheltenham Spa – Bristol Parkway HS – Cardiff HS = Cardiff (Rhoose) Airport
- 2tphH Paddington – Old Oak Common – LHR Interchange – Reading Parkway LL – Swindon – Bristol Parkway – Newport – Cardiff – Cardiff (Rhoose) Airport – Bridgend – Port Talbot – Neath – Swansea (reverse) – Llanelli – Carmarthen
- 2tphH Paddington – Old Oak Common – LHR Interchange – Reading Parkway LL – Didcot Parkway – Swindon – Kemble – Stroud – Stonehouse – Gloucester (splits / joins, one portion reversing and travelling to Worcester Shrub Hill, the other continuing:) – Lydney – Chepstow – Newport – Cardiff – Cardiff (Rhoose) Airport

The RM services are:

- 2tphR Stalybridge – Ashton-under-Lyne – Manchester Victoria – Salford Central – Eccles – Warrington Bank Quay – Helsby – Chester – Wrexham General – Ruabon – Chirk – Gobowen – Shrewsbury – Church Stretton – Craven Arms – Ludlow – Leominster – Hereford – Abergavenny – Pontypool & New Inn – Cwmbran – Newport – Cardiff – Cardiff (Rhoose) Airport – Bridgend – Port Talbot – Swansea
- 2tphR Plymouth – Ivybridge – Brent – Totnes – Newton Abbot – Teignmouth – Dawlish – Exeter St. David's – Cullompton – Tiverton Parkway – Taunton – Bridgwater – Highbridge – Weston Super Mare – Bristol Temple Meads – Filton Abbey Wood – Newport – Cardiff – Cardiff (Rhoose) Airport – Bridgend – Port Talbot – Neath – Swansea
- 2tphR Cleethorpes – Grimsby Town – Barnetby – Market Rasen – Lincoln – Newark Castle – Nottingham – Derby (reverse) – Burton upon Trent – Tamworth –Birmingham New St. – University – Bromsgrove – Droitwich Spa – Worcester Shrub Hill – Ashchurch – Cheltenham Spa – Gloucester – Lydney – Chepstow – Newport – Cardiff – Cardiff (Rhoose) Airport
- 2tphR Portsmouth Harbour – Portsmouth & Southsea – Fratton – Cosham – Fareham – Southampton – Romsey – Salisbury – Warminster – Westbury – Trowbridge – Bradford-on-Avon – Bath Spa – Bristol Temple Meads (reverse) Filton Abbey Wood – Newport – Cardiff – Cardiff (Rhoose) Airport
- 2tphR Brecon – Tal-y-llyn Junction [Aberystwyth – all stations – Brecon connects in here] – Talybont – Pant-y-rhiw – Torpantau – Dol-y-gaer – Pontsticill Junction – Cefn-coed-y-cymmer – Merthyr Tydfil (reverse) – Quakers Yard – Pontypridd – Cardiff Queen St. – Cardiff Central – Cardiff (Rhoose) Airport
  [The station stops between Tal-y-llyn Junction and Merthyr are all by request only. This also provides a fast service between Merthyr Tydfil and Cardiff.]

- 2tphRS Bristol Temple Meads – Filton Abbey Wood – Patchway – Pilning – Severn Tunnel Junction – Magor – Newport – Cardiff

[I am of course aware that the (narrow gauge) Brecon Mountain Railway currently occupies the section between Pontsticill Junction and Torpantau. A mutually acceptable and advantageous arrangement will be worked out, but I don't need to decide right now precisely what this will be.]

Representative hourly interchange pattern at Cardiff:

00H   Paddington – Swansea – Carmarthen
  H   Paddington – Cardiff Airport via Gloucester

07R   Stalybridge – Manchester – Swansea
  R   Portsmouth Harbour – Cardiff Airport
 RS   Bristol – Cardiff

23R   Plymouth – Swansea
  R   Cleethorpes – Cardiff Airport

– repeating at 30, 37 and 53 minutes past.

Representative complete hourly interchange pattern at Newport:
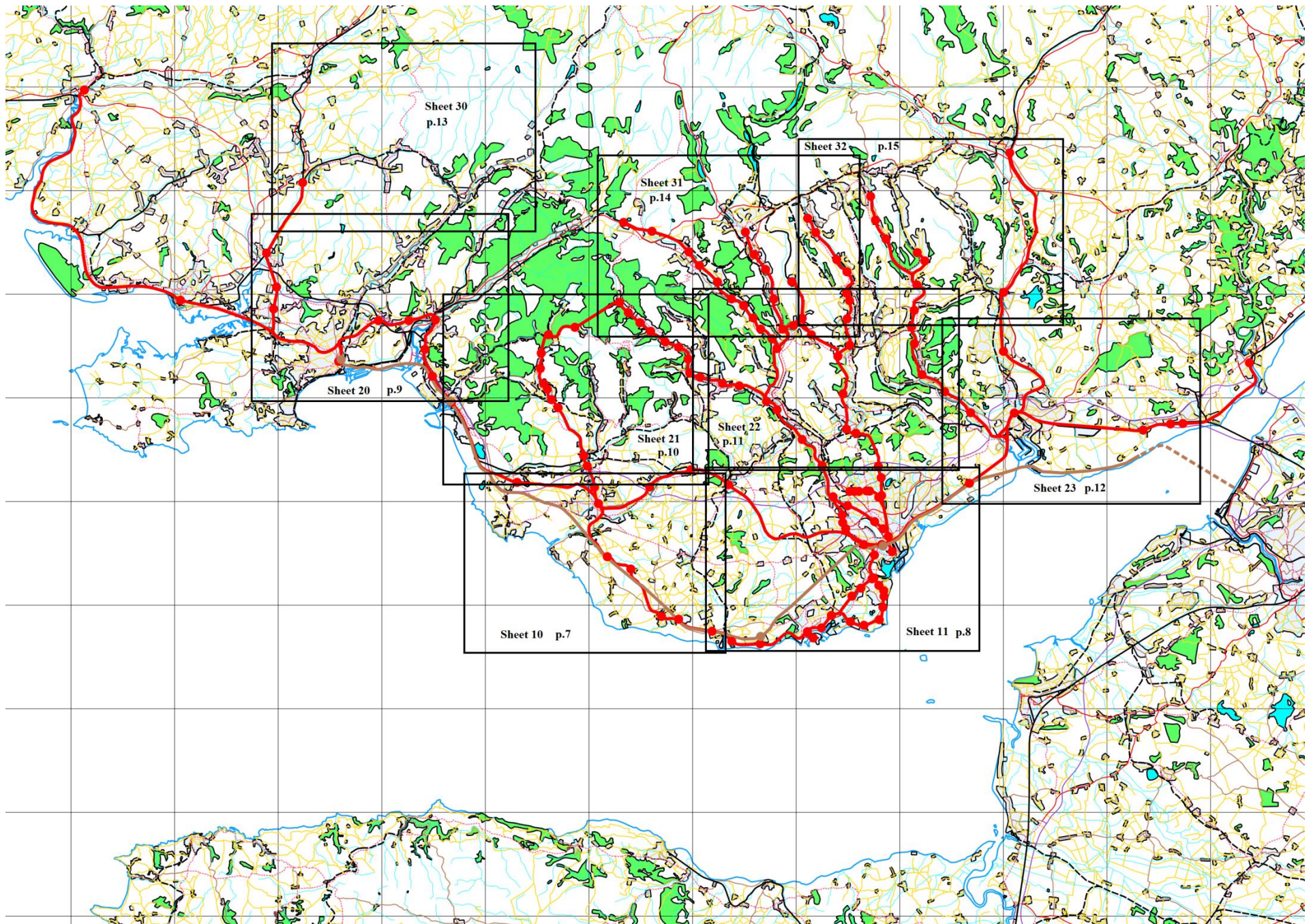
00H   Paddington – Swansea – Carmarthen

07R   Stalybridge – Manchester – Swansea
  R   Swansea – Plymouth
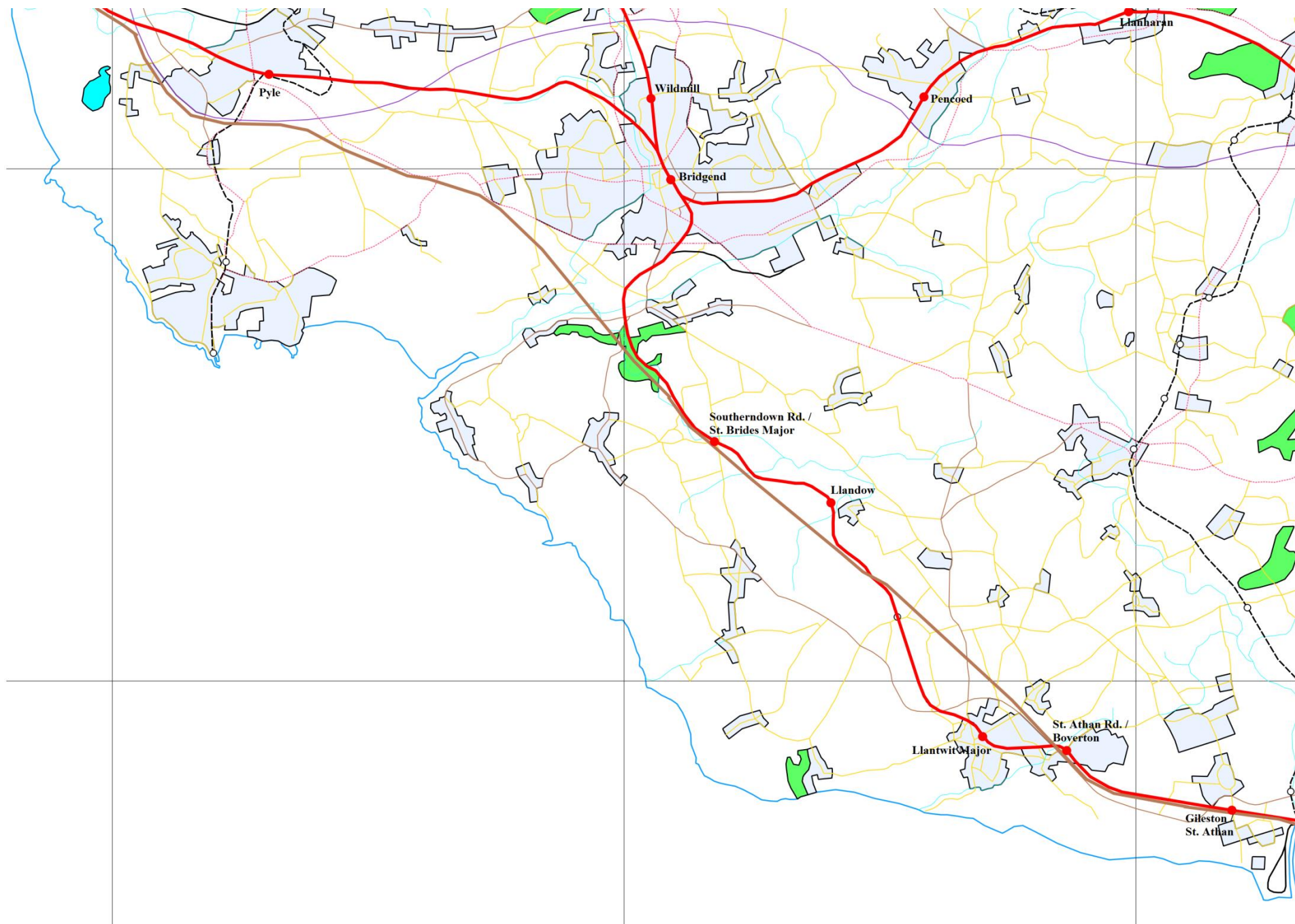 R   Plymouth – Manchester – Stalybridge (reverse)

15H   Carmarthen – Swansea – Paddington
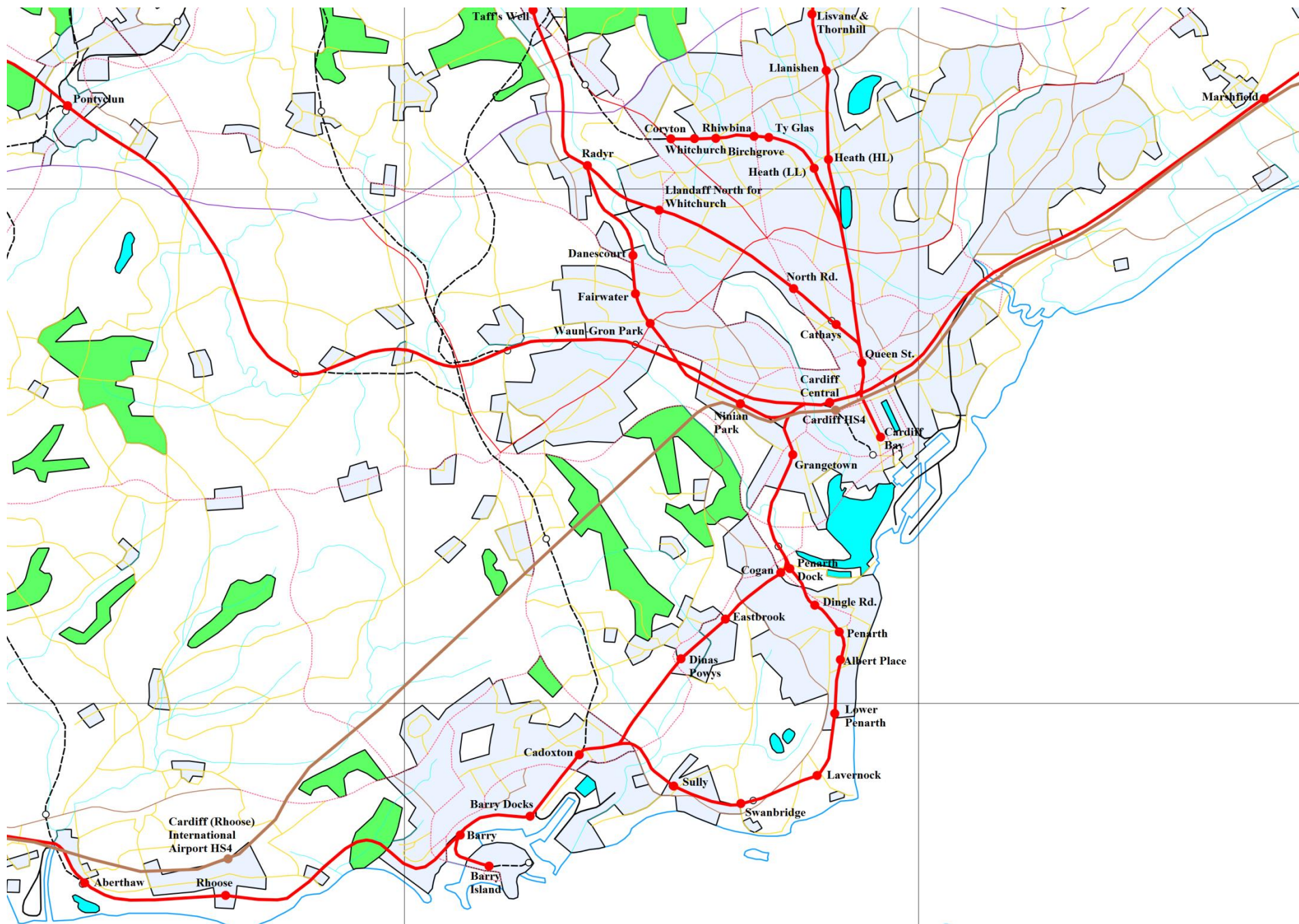
23R   Plymouth – Swansea
  R   Swansea – Manchester – Stalybridge
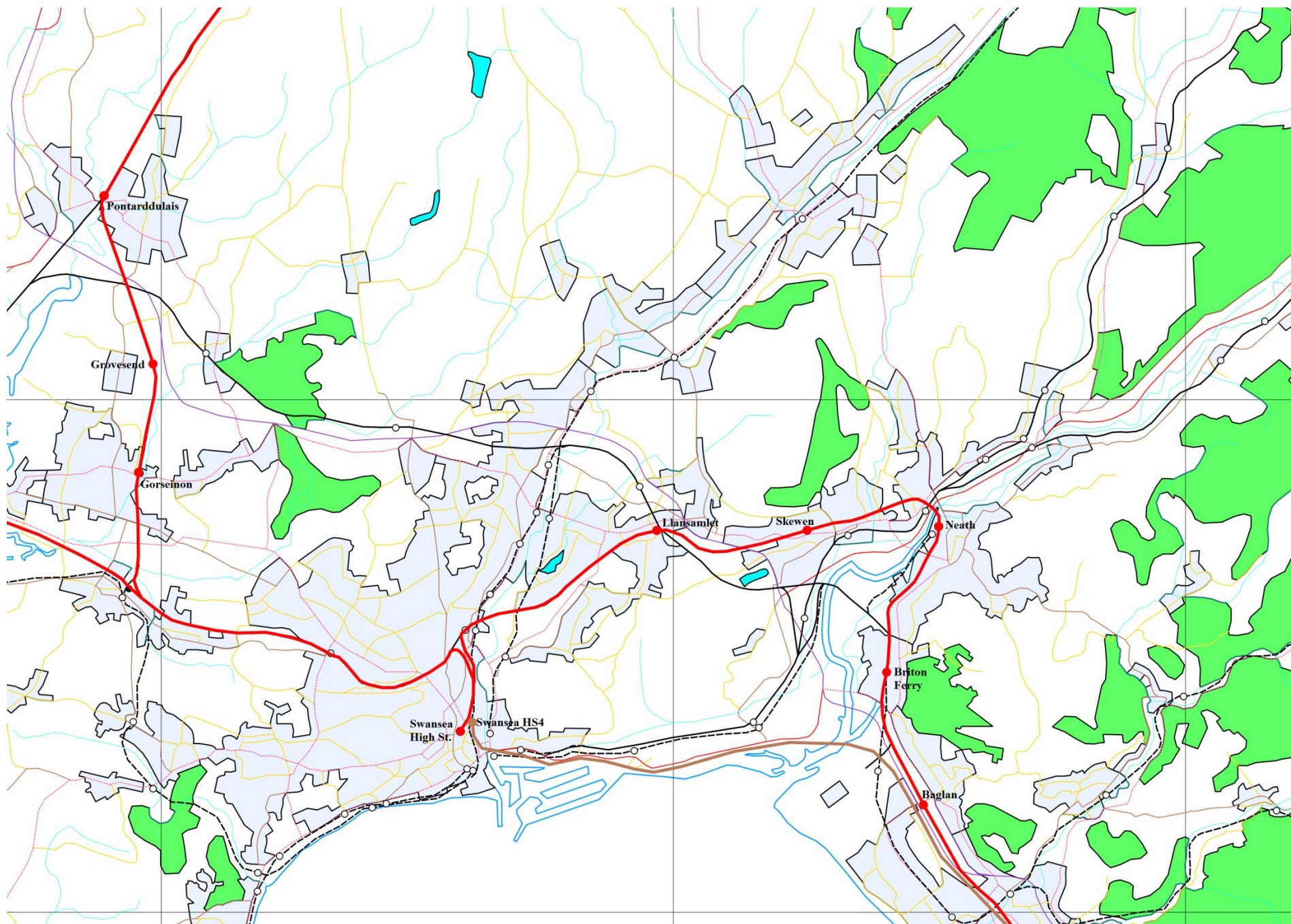 R   Stalybridge – Manchester – Plymouth (reverse)

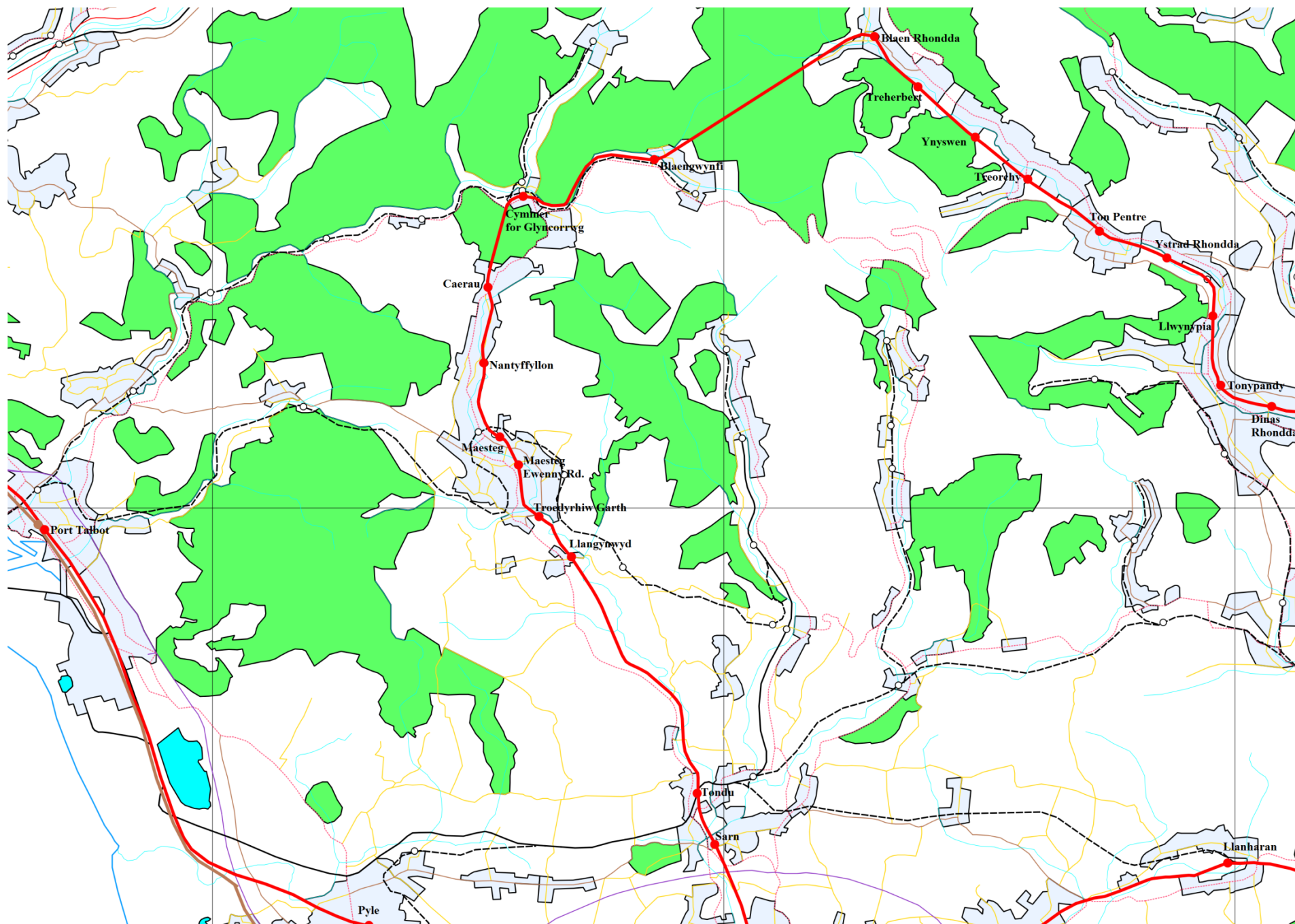– repeating at 30, 37, 45 and 53 minutes past.

The Stalybridge – Plymouth service reverses in platform 1, where it spends c.10 minutes. The other pair of trains at 07 and 23 are each travelling in opposite directions, and have a cross-platform interchange, using platforms 2 and 3. There is thus plenty of time for non-cross-platform interchange with the Stalybridge – Plymouth service. The point of all this is that these timings at Newport enable a service of 4tph between each pair Stalybridge – Plymounth, Plymouth – Swansea and Swansea – Stalybridge, in both directions, 2tph being through services and the other 2tph involving one change, at Newport, giving the same arrival times as the through services. Hence the necessity to give the complete service, in both directions, at Newport. (The other trains featuring in the Cardiff connections, do not make connections at Newport, having passed through Newport earlier, for westbound services, or passing through later, for eastbound.)
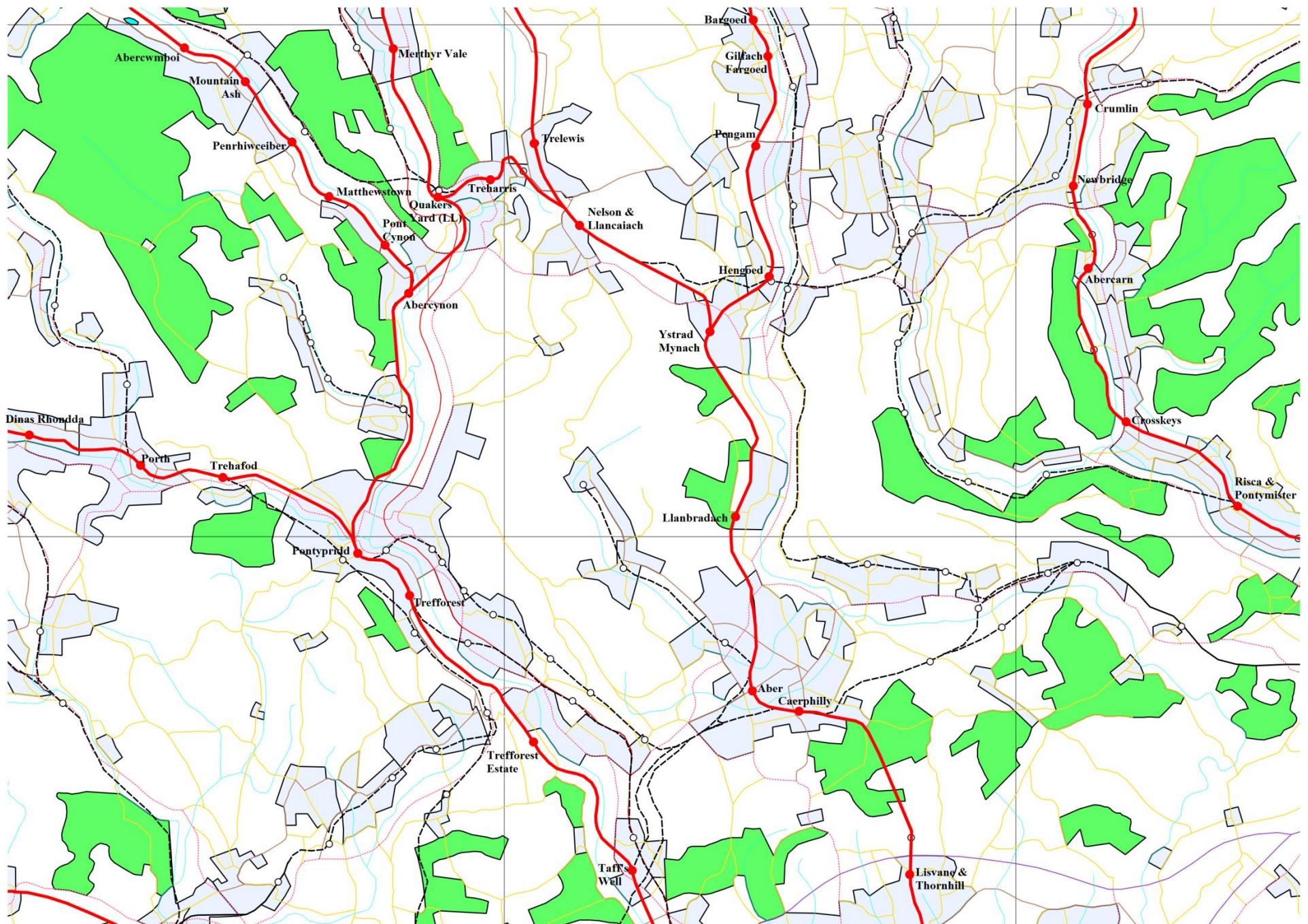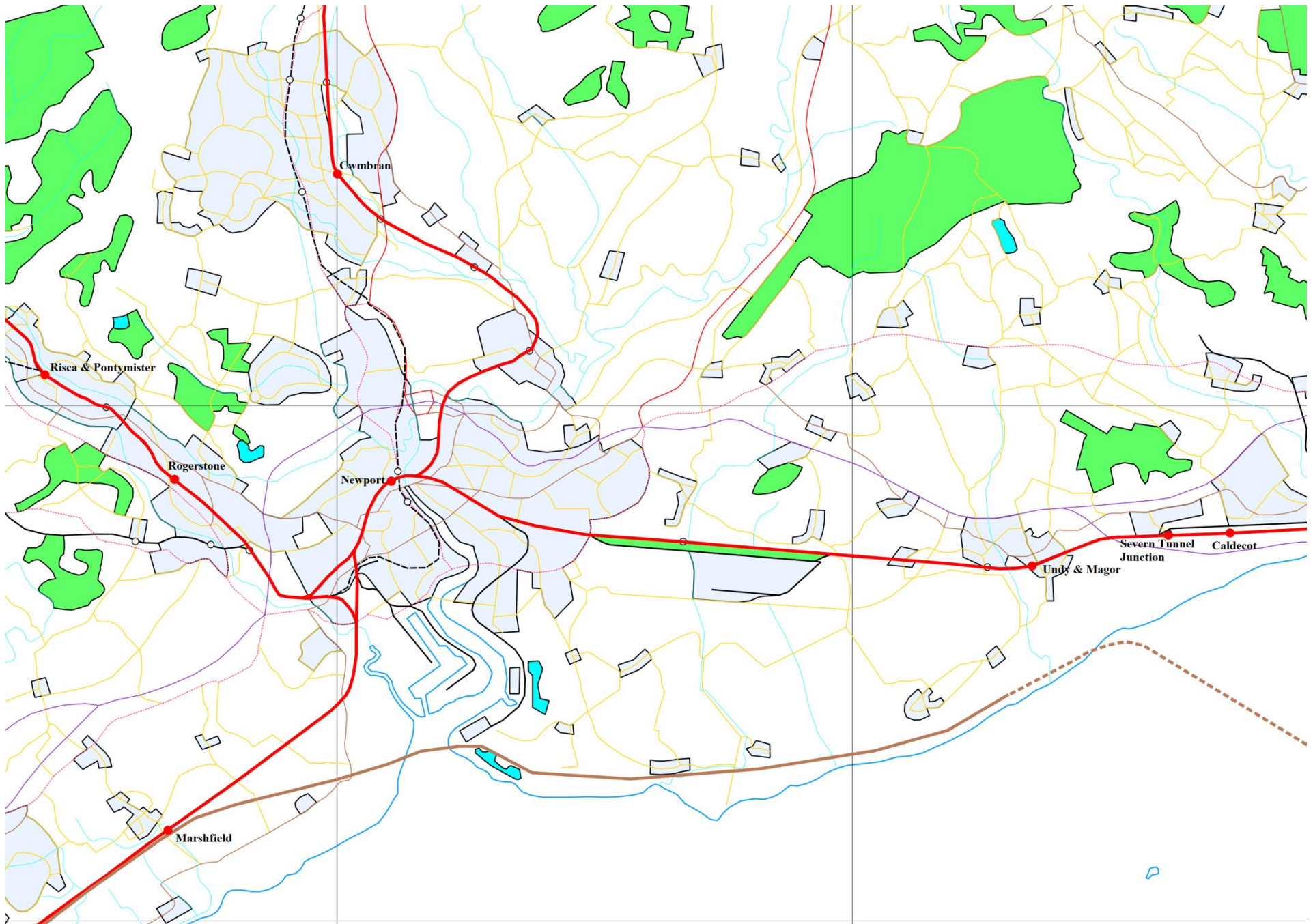
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South Wales Key

Regional Metro Services to South Wales v1.3

Pyle

Wildmill

Pencoed

Llanharan

Bridgend

Southerndown Rd. /
St. Brides Major

Llandow

St. Athan Rd. /
Boverton

Llantwit Major

Gileston /
St. Athan

South Wales Sheet 21

Regional Metro Services to South Wales v1.3

Cwmbran

Risca & Pontymister

Rogerstone

Newport

Severn Tunnel
Junction

Caldecot

Undy & Magor

Marshfield

Pantyffynnon

South Wales Sheet 31

Regional Metro Services to South Wales v1.3

Rhymney

Pontlottyn

Tir Phil

Brithdir

Bargoed

Gilfach
Fargoed

Pengam

Trelewis

Ebbw Vale Town

Ebbw Vale Parkway

Cwm

Abertillery

Six Bells

Llanhilleth

Crumlin

Abergavenny

Pontypool
& New Inn

South Wales Sheet 32

Regional Metro Services to South Wales v1.3

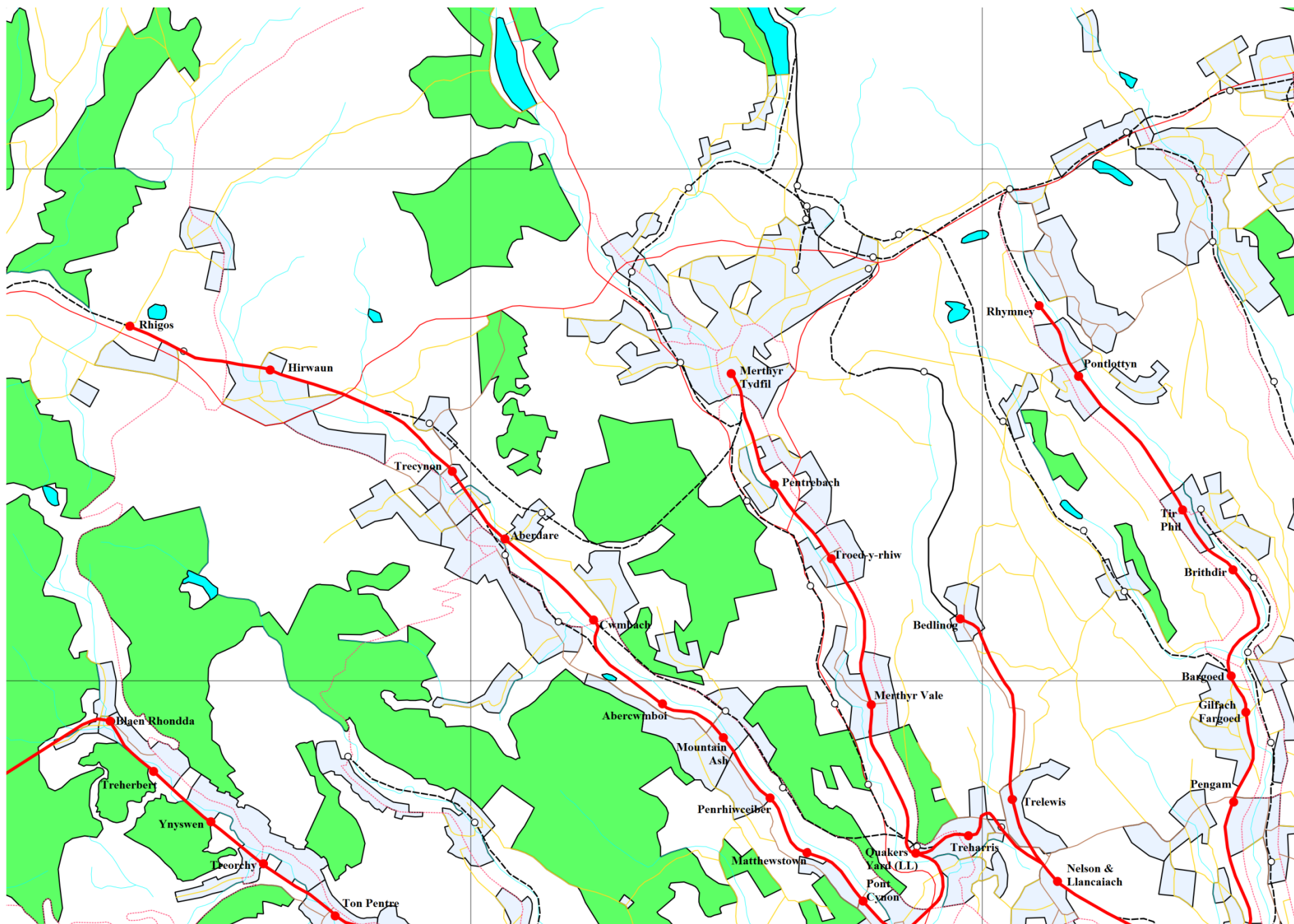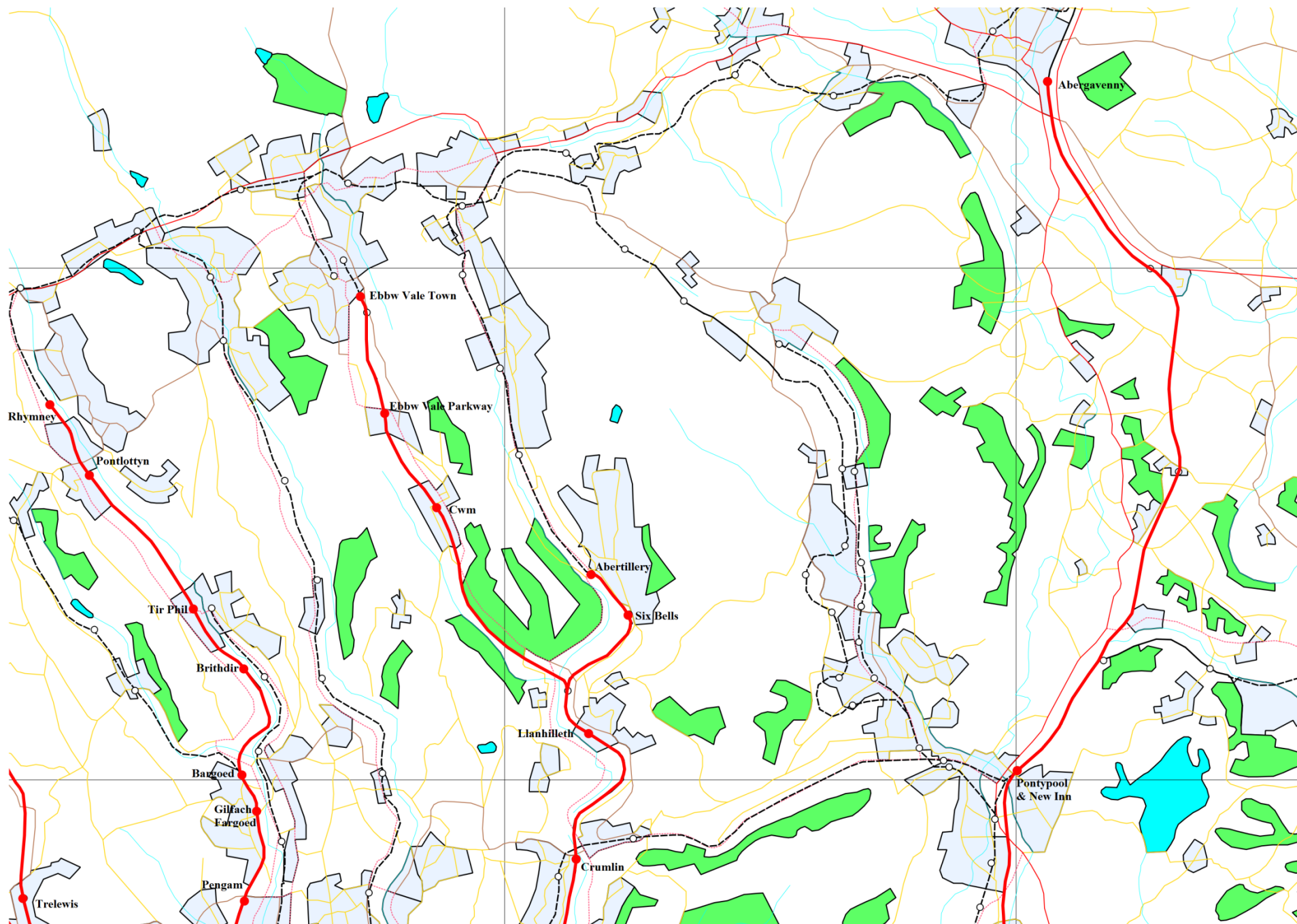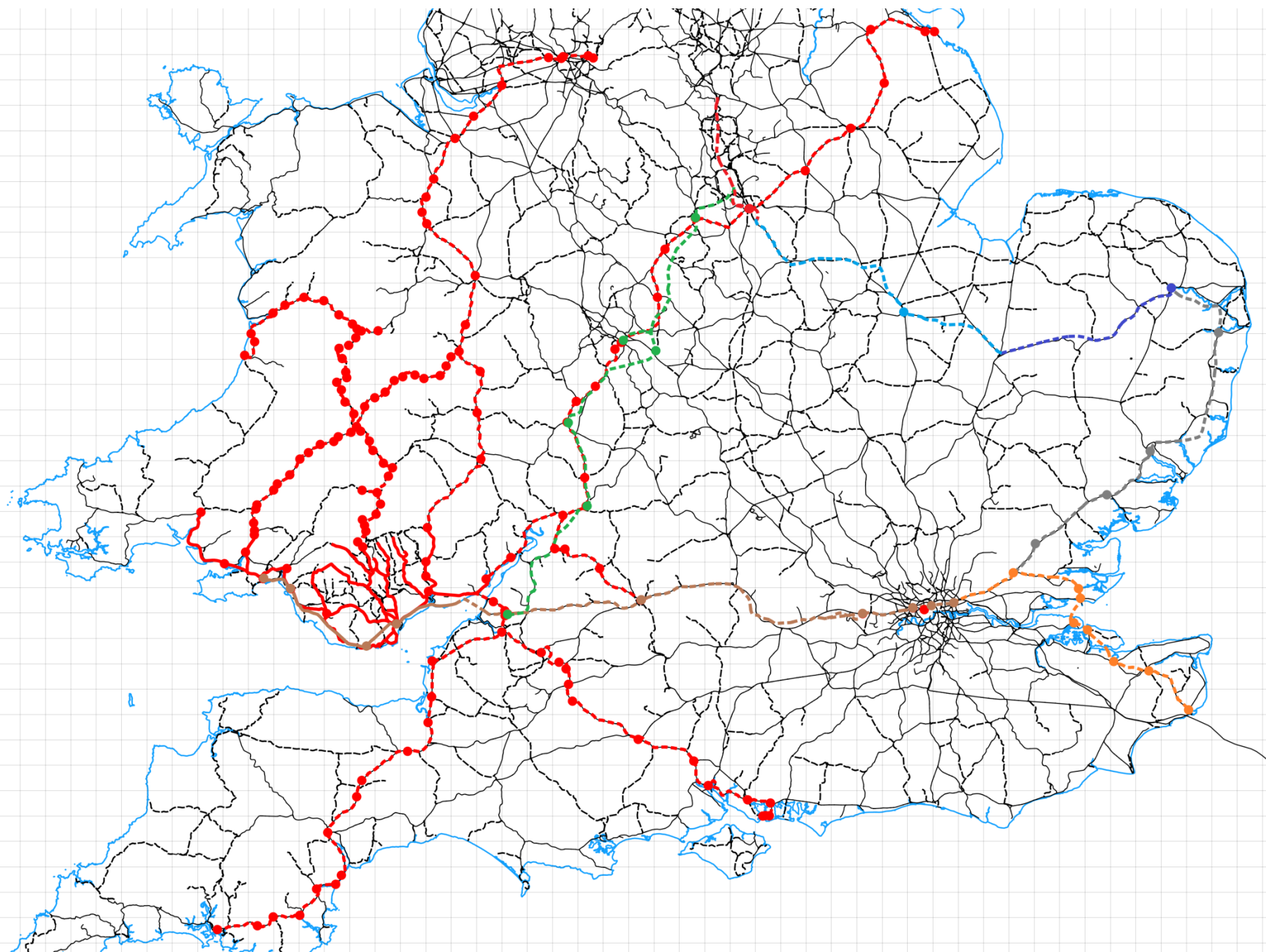Contains Ordnance Survey data © Crown copyright and database right 2011

Appendix A – Track Layouts in Cardiff and Newport

The track layouts in Cardiff and Newport, with the traffic levels they currently have to support, and even more so with the levels here proposed, are very non-ideal. They could be very much improved, which would not be difficult, but would not be cheap either.

The principal inconveniences at Cardiff Central are two: the freight tracks and the Valleys Lines platforms.

There are four tracks between Severn Tunnel Junction and just west of Cardiff Central, but all the way west of the Bishton flyover, these are arranged as two alternating pairs, the fast lines to the north / west and the reliefs to the south / east. The flyover was built to provide convenient freight access to the Llanwern steelworks, and presumably also to the East Moors steelworks east of Cardiff, but the East Moors works closed in 1978, and Llanwern is no longer used for steelmaking, so I would judge its long-term future to be in doubt. It is thus hard to see what continuing purpose the flyover serves. The layout certainly makes for extreme inconvenience at both Newport and Cardiff Central stations, where some of the platforms are to the south / east of the relief lines. This means that passenger trains have to cross both freight tracks, on the level, to access the down platforms – both of them (3 and 4) at Cardiff, and platform 1 at Newport (which would ordinarily be the main platform for westbound trains, but in practice is used as little as possible, most down trains serving platform 2).

The ideal solution would seem to be to remove the Bishton flyover, and reorganise the tracks in parallel pairs, the relief lines on the outside, enabling easy switching between fast and relief, and removing the bottlenecks at both Newport and Cardiff stations (in both cases, the freight lines have their own, separate alignment through the centre). Should this not be practicable, i.e. if Bishton has a definite long-term benefit, a second-best solution would be a second flyover, some three miles east of Cardiff Central, in the St. Mellons area, to switch the down main to the south / east side, thus pre-sorting the tracks for the station, (the mains being on the outside,) and simplifying provision of several suburban stations, as recommended in the South Wales Metro proposals.

The other problem at Cardiff Central, platform capacity for Valley Lines trains, is being addressed, after a fashion, by the addition of the new platform 8. It is hard to see what benefit this will bring. A new **island** platform, thus **two** new platform faces, 8 and 9, would have been sensible. This would separate the southbound valley trains, allowing two services simultaneously, and incidentally enabling overtaking, with similar benefits to northbound trains on the existing platforms 6 and 7. But as it is, the new platform, only half the length of the existing platforms, cannot possibly accommodate all the southbound valleys traffic, which will therefore need to keep platform 7 as well. So we have a potential 50% (*) increase in capacity southbound and no increase northbound. I have seen it suggested that the northbound traffic could take over platform 4 – the second platform face of the down mainline island platform! As a piece of outright insanity, this would be hard to beat – the tail wagging the elephant, rather than the dog. The only (reasonable) solution is the later addition of a second platform face 9 – at hugely greater cost than would have been incurred in doing it simultaneously with platform 8.

The ideal, medium size station has two island platforms, each with two platform faces served by trains travelling in the same direction. This allows for cross-platform interchange between services, and for overtaking. Its convenience for the passenger is that it is immediately clear which pair of platforms is appropriate, determined solely by direction of travel. The other type of 4-platform station, with the island platform in the middle, served by trains travelling in opposite directions, has the same benefits in capacity

and overtaking capability for the railway operator, but is vastly less convenient for the passenger, who must check precisely which platform the desired service will use (and listen very carefully for garbled loudspeaker announcements of possible platform switch, invariably with insufficient time to cross to the new platform in any comfort). Both Cardiff Queen St. and Newport stations are of this latter type.

While it is certainly nice to have platform 5 restored at Queen St, and, with the new bay platform 1 for the Cardiff Bay service allowing platform 2 to be monopolised by southbound through traffic, almost doubling capacity (actually doubling it northbound), the above criticism applies – passengers will have to check which of platforms 2 or 3 the next train to Central departs from. (There's no problem northbound – all Rhondda, Merthyr and Aberdare services will be from the restored platform 5 and Rhymney and Coryton line service from platform 4.) It is easily possible to devise a layout where all southbound services were to use the central island, platforms 3 and 4, and northbound services both outer lines, but since this would involve two flyovers, (since flat crossings would not be feasible at the traffic densities involved,) and involve the widening to four tracks of the bridge over the Newport Road, immediately to the north of the station, I conclude with regret that it would not be cost-effective.

Newport, however, is in the extremely unusual category where cross-platform interchange between services travelling in opposite directions is exactly what is required. There has previously been very little requirement to change at Newport, but with the introduction of the Plymouth – Swansea, Swansea – Stalybridge and Stalybridge – Plymouth (reversing at Newport) triangle of services, three-way interchange at Newport is required, as explained in the service plans section, earlier.

(*) 50% rather that 100% since the existing platforms can each accommodate 2 trains, whereas the new platform can accommodate only one.