

The South Wales Metro

The South Wales Metro covers the area from Barry Island in the south to Ebbw Vale in the north, and from Swansea in the west to Cheltenham in the east. It is part heavy rail and part light rail. For the purposes of this article, I shall group all the Valley Lines services as heavy rail, and restrict light rail to just those new routes, part on-road and part taking over disused heavy rail alignments, which have exclusive (rail) use of their own alignments. I have read Ian Walmsley's article in the November 2013 issue of 'Modern Railways', arguing that tram-trains offer the best solution for the Valley Lines, and I find his arguments persuasive. (The only route which is unambiguously heavy-rail is the South Wales main line, Cheltenham – Swansea in the present context.) But for the purposes of this article I shall maintain the above division. Swansea is of course the focus of its own metro (which has its own article in this series), but the South Wales metro service along the main line from Cheltenham / Chepstow to Swansea is logically quite separate. (Of course, if the Valley Lines do end up as an exclusive tram-train preserve, and thus light-rail – as I believe they should – then nearly all the light-rail groupings simply merge into the overall system.)

Heavy-Rail Services:

The heavy-rail services are:

1. The Pontypridd group of services:

- 2tph Blaen Rhondda – Treherbert – Ynyswen – Treorchy – Ton Pentre – Ystrad Rhondda – Llwynypia – Tonypany – Dinas Rhondda – Porth – Trehafod – Pontypridd – Trefforest – Trefforest Estate – Taff's Well – Radyr – Llandaff North for Whitchurch – North Rd. – Cathays – Queen St. – Cardiff Central – Grangetown – Cogan – Eastbrook – Dinas Powys – Codoxton – Barry Docks – Barry – Rhoose (bus shuttle to airport) – Aberthaw – Gileston / St. Athan – St. Athan Rd. / Boverton – Llantwit Major – Llandow – Southerndown Rd. / St. Brides Major – Bridgend – Wildmill – Sarn – Tondur – Llangynwyd – Troedyrhiw Garth – Maesteg Ewenny Rd. – Maesteg – Nantyffyllon – Caerau – Cymmer for Glyncorwg – Blaengwynfi – Blaen Rhondda
- 2tph Porth – Trehafod – Pontypridd – Trefforest – Trefforest Estate – Taff's Well – Radyr – Llandaff North for Whitchurch – North Rd. – Cathays – Queen St. – Cardiff Central – Grangetown – Cogan – Eastbrook – Dinas Powys – Codoxton – Barry Docks – Barry – Rhoose (bus shuttle to airport) – Aberthaw – Gileston / St. Athan – St. Athan Rd. / Boverton – Llantwit Major – Llandow – Southerndown Rd. / St. Brides Major – Bridgend – Wildmill – Sarn – Tondur – Llangynwyd – Troedyrhiw / Garth Maesteg Ewenny Rd. – Maesteg – Nantyffyllon – Caerau
- 2tph Rhigos – Hirwaun – Trecynon – Aberdare – Cwmbach – Abercwmboi – Mountain Ash – Penrhiwceiber – Matthewtown – Pont Cynon – Abercynon – Pontypridd – Trefforest – Trefforest Estate – Taff's Well – Radyr – Llandaff North for Whitchurch – North Rd. – Cathays – Queen St. – Cardiff Central – Grangetown – Cogan – Eastbrook – Dinas Powys – Codoxton – Barry Docks – Barry – Barry Island
- 2tph Merthyr Tydfil – Pentrebach – Troed-y-rhiw – Merthyr Vale – Quakers Yard (LL) – Abercynon – Pontypridd – Trefforest – Trefforest Estate – Taff's Well – Radyr – Llandaff North for Whitchurch – North Rd. – Cathays – Queen St. – Cardiff Central – Grangetown – Cogan – Eastbrook – Dinas Powys – Codoxton – Barry Docks – Barry – Barry Island

The Blaen Rhondda service could be run as a circle, but for timekeeping purposes I think terminating at Blaen Rhondda in both directions the better option. Passengers can still **use** it as a circle, simply by changing there.

2. The Caerphilly group of services:

- 2tph Rhymney – Pontlottyn – Tir Phil – Brithdir – Bargoed – Gilfach Fargoed – Pengam – Hengoed – Ystrad Mynach – Llanbradach – Aber – Caerphilly – Lisvane & Thornhill – Llanishen – Heath (HL) – Roath Park & Pen-y-lan – Crwys Rd. – Queen St. – Cardiff Central – Grangetown – Penarth Dock – Dingle Rd. – Penarth
- 2tph Bargoed – Gilfach Fargoed – Pengam – Hengoed – Ystrad Mynach – Llanbradach – Aber – Caerphilly – Lisvane & Thornhill – Llanishen – Heath (HL) – Roath Park & Pen-y-lan – Crwys Rd. – Queen St. – Cardiff Central – Grangetown – Penarth Dock – Dingle Rd. – Penarth
- 2tph Bedlinog – Trelewis – Nelson & Llancaiach – Ystrad Mynach – Llanbradach – Aber – Caerphilly – Lisvane & Thornhill – Llanishen – Heath (HL) – Roath Park & Pen-y-lan – Crwys Rd. – Queen St. – Cardiff Central – Grangetown – Penarth Dock – Dingle Rd. – Penarth – Albert Place – Lower Penarth – Lavernock – Swanbridge – Sully – Codoxton – Barry Docks – Barry – Rhoose (bus shuttle to airport)
- 2tph Quakers Yard (LL) – Treharris – Nelson & Llancaiach – Ystrad Mynach – Llanbradach – Aber – Caerphilly – Lisvane & Thornhill – Llanishen – Heath (HL) – Roath Park & Pen-y-lan – Crwys Rd. – Queen St. – Cardiff Central – Grangetown – Penarth Dock – Dingle Rd. – Penarth – Albert Place – Lower Penarth – Lavernock – Swanbridge – Sully – Codoxton – Barry Docks – Barry – Rhoose (bus shuttle to airport)

3. The Cardiff group of local services:

- 4tph Coryton – Whitchurch – Rhiwbina – Birchgrove – Ty Glas – Heath (LL) – Roath Park & Pen-y-lan – Crwys Rd. – Queen St. – Cardiff Central – Ninian Park – Waun Gron Park – Freshwater – Danescourt – Radyr
- 4tph Queen St. – Cardiff Bay

4. The Eastern Valleys group of services:

- 2tph Ebbw Vale Town – Ebbw Vale Parkway – Cwm – Llanhilleth – Crumlin – Newbridge – Abercarn – Crosskeys – Risca & Pontymister – Risca East – Rogerstone – Pye Corner / Bassaleg Junction – Park Junction -> *[to Bridgend, in South Wales Main Line group of services]*
- 2tph Abertillery – Six Bells – Llanhilleth – Crumlin – Newbridge – Abercarn – Crosskeys – Risca & Pontymister – Risca East – Rogerstone – Pye Corner / Bassaleg Junction – Park Junction -> *[to Chepstow, in South Wales Main Line group of services]*
- 4tph Trethomas – Machen – Church Rd. – Rhiwderyn – Bassaleg – Pye Corner / Bassaleg Junction – Park Junction – Newport – East Usk – St. Julians – Caerleon – Ponthir – Llantarnam – Cwmbran – Pontnewydd – Pontrhydyrun – Griffithstown – Pontypool & New Inn

5. The South Wales Main Line group of services:

- 2tph Cheltenham St. James – Cheltenham Lansdown – Gloucester – Newnham – Lydney – Chepstow – Newport – Cardiff Central – Bridgend – Pyle – Port Talbot – Baglan – Briton Ferry – Neath – Skewen – Llansamlet – Swansea

- 2tph Chepstow – Caldecot – Severn Tunnel Junction – Undy & Magor – Liswerry – Somerton – Maindee – Newport – Marshfield – Trowbridge & Pilldu (bus connection for St. Mellons & Llanedeyrn) – Pyll-mawr & Rumney – Tremorfa – East Moors – Cardiff Central – Ninian Park North – Ely – St. Fagans – Peterston-super-Ely – Pontyclun – Llanharan – Pencoed – Bridgend – Pyle – Port Talbot – Baglan – Briton Ferry – Neath – Skewen – Llansamlet – Swansea
- 2tph *[From Ebbw Vale Town ->]* Marshfield – Trowbridge & Pilldu (bus connection for St. Mellons & Llanedeyrn) – Pyll-mawr & Rumney – Tremorfa – East Moors – Cardiff Central – Ninian Park North – Ely – St. Fagans – Peterston-super-Ely – Pontyclun – Llanharan – Pencoed – Bridgend
- 2tph Chepstow – Caldecot – Severn Tunnel Junction – Undy & Magor – Liswerry – Somerton – Maindee – Newport -> *[to Abertillery, in Eastern Valleys group of services]*

The South Wales Main Line group of services is obviously and unambiguously heavy-rail. The Eastern Valleys group may thus likewise best be heavy rail, since a large part of their routes are also on the main line or the Marches Line. (Also, the Machen route carries continuing mineral traffic from Machen Quarry, hence the metro service is terminated at the relocated Trethomas, where it connects with light-rail services to Caerphilly and Bargoed.)

Representative Hourly Interchange Pattern at Cardiff (main line services):

- 00 Cheltenham – Swansea
- 01 Chepstow – Swansea
- 16 Ebbw Vale – Bridgend
(no connection)

– repeating at 30, 31 and 46 minutes past.

The point here is that the Cheltenham – Swansea service is non-stop between Cardiff and Bridgend (but all stations thence to Swansea), but the Chepstow and Ebbw Vale services have 7 stops, so are allowed c.14 minutes longer. This means that the Cheltenham and Chepstow services together offer a service every 15 minutes for all stations Bridgend – Swansea, whereas the Ebbw Vale and Chepstow services together offer a service every 15 minutes for all stations between Cardiff and Bridgend. The Ebbw Vale service arrives in Bridgend (bay platform) just before the Cheltenham service and connects into it. Thus altogether there is a service every 15 minutes for all stations between Cardiff and Swansea, half direct and half with a change at Bridgend, and also a fast service every 30 minutes (metro, that is – there are also 2tph Paddington – Swansea). (In fact every station between Chepstow and Swansea enjoys a service of at least every 15 minutes.)

Departure sequence of Valleys Lines trains from Cardiff:

- 00 Blaen Rhondda – Blaen Rhondda via Dinas Powys
- 03 Rhymney – Penarth
- 06 Coryton – Radyr
- 09 Rhigos – Barry Island via Dinas Powys
- 12 Bedlinog – Rhoose via Penarth
- 15 Porth – Caerau via Dinas Powys
- 18 Bargoed – Penarth
- 21 Coryton – Radyr

- 24 Merthyr – Barry Island via Dinas Powys
 27 Quakers Yard – Rhoose via Penarth

– repeating at 30 minutes past. Note that this gives a service every 15 minutes for the destinations Caerau (alternately continuing to Blaen Rhondda), Penarth, Radyr, Barry Island and Rhoose. (Some intermediate stations have many more services, of course – their good fortune.)

Light Rail Services:

The light-rail routes (as this article is divided up) do not form a continuous system, but are, in general, groupings of services based on a specific heavy-rail station. They mostly take over the alignment of a former, now closed, heavy-rail route (of which there are very many in South Wales), and that is how they are shown on the maps, but there definitely will be diversions on-street as necessary to avoid obstacles and to improve accessibility. (As a specific example, the Rhondda-fach line, from Porth to Maerdy, has now been built over by a road, for the first 2½ miles or so, to just before Tylorstown. It will therefore run along the old road, over this section.) A number of light rail stations/halts/stops are included as illustration, generally, but not always, corresponding to former heavy-rail stations. There will in practice be many more, that being the nature of light rail.

1. Light-Rail Routes based on Port Talbot:

- Port Talbot Station – Heilbronn Way – Bevan St. – Victoria Rd. / Princes Margaret Way – Aberavon Beach – Southdown Rd. / Western Avenue – Sandfields
- Port Talbot Station – Port Talbot (Aberavon) – Cwmavon – Pont-rhyd-y-fen (relocated) – Cynonville – Dyffryn Rhondda – Cwm Cymmer (double reversal) – Cymmer North – Glyncoirwg
- Port Talbot Station – Port Talbot (Aberavon) – Pen-y-cae – Goetre – Cwm Dyffryn – Bryngurnos – Maesteg South – Maesteg Central – Maesteg North – Cwmdy – Llety Brongu – Llangeinor West – Pontrhyl – Pontycymmer – Blaengarw

It is highly probable that the light-rail route through Maesteg will have to be on-road, not that that's a problem, and it would allow direct connection with the existing Maesteg station. The rest of the route to Blaengarw looks to be largely still in place. See appendix B about the double reversal at Cwm Cymmer, and the amazing Cymmer viaduct. The Blaengarw branch is also served by a service from Llanharan, see below.

2. Light-Rail Routes based on Pyle:

- Kenfig Hill – Pyle North – Pyle Station – North Cornelly – Newton Court – Newton – New Rd. / Mackworth Rd. – John St. – Picton Avenue / Esplanade – Windsor Way / Mallard Way – Fulmar Rd. / Mallard Way – Fulmar Rd. / West Park Drive – Nottage – North Cornelly – Pyle Station – Pyle North – Kenfig Hill [Porthcawl Loop, clockwise.]
- Kenfig Hill – Pyle North – Pyle Station – North Cornelly – Nottage – Fulmar Rd. / West Park Drive – Fulmar Rd. / Mallard Way – Windsor Way / Mallard Way – Picton Avenue / Esplanade – John St. – New Rd. / Mackworth Rd. – Newton – Newton Court – North Cornelly – Pyle Station – Pyle North – Kenfig Hill [Porthcawl Loop, counter-clockwise.]

The Porthcawl Loop is a splendid example of the flexibility of light rail. Much of the trackbed of the former Porthcawl branch is still available, but the last mile or so, from Nottage to the former station, has

completely disappeared under a road. No problem. A light rail route from Nottage, looping north then along the sea front, through the centre of the town, out to Newton then back to (near) Nottage provides a far better service for inhabitants and visitors than the old branch ever was able to.

There is also a service from Kenfig Hill to Tondy and Llanharan, which features in the next group.

3. Light-Rail Routes based on Llanharan:

- Llanharan Station – Brynna – Heol-y-cyw – Bryncethin – Tondy Station – Aberkenfig – Cefn Cribwr – Kenfig Hill (two of my favourite Welsh place names in that selection!)
- Llanharan Station – Brynna – Heol-y-cyw – Bryncethin – Bettws – Llangeinor – Pontrhyll – Pontycymmer – Blaengarw
- Llanharan Station – Brynna – Heol-y-cyw – Bryncethin – Blackmill – Pant-yr-awel – Ogmere Vale South – Ogmere Vale North – Wyndham – Price Town – Nant-y-moel

4. Light-Rail Routes based on Pontyclun:

- Pontyclun – Talbot Green – Dyffryn – Coed Ely – Thomastown – Hendreforgan – Gilfach – Gilfach Goch – Evanstown
- Pontyclun – Talbot Green – Dyffryn – Coed Ely – Thomastown – Tonyrefail – Williamstown – Penygraig – Tonypany Upper
- Pontyclun – Talbot Green South – Llantrisant South – Cross Inn – Llantrisant Junction – Beddau – Llantwit Fardre – Church Village – Tonteg – Trefforest West – Pontypridd Upper – Trehafod Station – Porth Station – Ynysir – Tylorstown – Ferndale – Maerdy

The Rhondda-fach route (Maerdy) north of Tonteg is also served from Cardiff, see below. As noted earlier, the first 2½ miles of the route north of Porth has been built over by a road. It would probably be a good idea to extend this as far as Fernhill, and have light rail take over the old road as far as Fernhill, and the old alignment only for the last section to Maerdy. The old branch gave a very poor passenger service as it ran along the valley floor, whereas all the housing was up the valley sides (in striking contrast to the Rhondda-fawr branch, which served its various small townships very well). This is probably why it didn't survive, whereas the Rhondda-fawr line did.

Also concerning the Pontyclun – Maerdy service: the line around Beddau, will certainly be rerouted on-road. Beddau is quite a sizeable place, but nowhere near the former station, which purported to serve it.

5. Light-Rail Routes based on Cardiff:

- Penarth Station – Penarth Head – Penarth Marina – The Barrage – Queen Alexandra Dock – Millennium Centre / National Assembly – Clarence Rd. – Butetown West – Cardiff Central Station South – Taff Meads Embankment – Clare Rd. / Merches Place – Stafford Rd. – Hereford St. – Virgil St. – Ninian park Station – Lansdowne Rd. – Lansdowne Avenue West – Cowbridge Rd. – Waun Gron Park Station – Fairwater Station – Waterhall – Croft-y-genau Rd. – Capel Llanilltern – Creigiau – Rhiwsaeson – Llantrisant Junction – Davidstown – Llantrisant
- Penarth Station – Penarth Head – Penarth Marina – The Barrage – Queen Alexandra Dock – Millennium Centre / National Assembly – Clarence Rd. – Butetown West – Cardiff Central Station South – Taff Meads Embankment – Clare Rd. / Merches Place – Stafford Rd. – Hereford St. – Virgil St. – Ninian park Station – Lansdowne Rd. – Lansdowne Avenue West – Cowbridge Rd. – Waun Gron Park Station – Fairwater – Waterhall – Croft-y-genau Rd. – Capel Llanilltern –

- Creigiau – Efail-isaf – Celyn / Dyffryn-bach – Tonteg – Trefforest West – Pontypridd Upper – Trehafod Station – Porth Station – Ynyshir – Tylorstown – Ferndale – Maerdy
- Culverhouse Cross – Caerau – Ely Station – Cowbridge Rd. – Canton – Riverside – Cardiff Central Station North – Queen St. Station – North Splott – Roath – Rumney – Llanrumney – St. Mellons – Castleton – Celtic Lakes – Tredegar Park – Park Junction Station – Stow Park – Pillgwenlly – Millennium Bridge – Newport Station
- Penarth Dock Station – Penarth Marina – The Barrage – Queen Alexandra Dock – Millennium Centre / National Assembly – Cardiff Bay Station – Queen St. Station

The Cardiff Bay shuttle from Queen St. really must become light-rail (and extend through to Penarth) whatever happened to the rest of the Valley Lines.

6. Light-Rail Routes based on Caerphilly:

- Taff's Well – Nantgarw – Watford Park – Caerphilly Station – Trethomas Station – Ty-canol Rd. – Bedwas – Llanbradach East – Maes-y-cymmer & Hengoed – Fleur-de-lis – Pengam East – Glifach Fargoed Station – Bargoed Station
- Caerphilly Station – Aber Station – Pen-yr-heol – Abertridwr – Senghenydd

7. Light Rail Routes based on Newport:

- Culverhouse Cross (Cardiff) – see above
- Newport Station – Millennium Bridge – Pillgwenlly – Stow Park – Park Junction Station – Pye Corner & Bassaleg Junction Station – Risca East Station – Risca & Pontymister Station – Nine Mile Point – Pont Lawrence – Ynys-ddu – Wyllie – Pont-llan-fraith – Woodfieldside – Blackwood – Argoed – Markham Village – Hollybush – Bedwellty Pits – Tredegar

Order of Implementation:

The services included in the heavy-rail section, being mainly those of the Valley Lines, run mainly on routes which exist currently and currently have passenger services. It is therefore just (!!!GWML???) a matter of electrifying them, to a reasonably simple, fairly low-speed system. If served by tram-trains, as they (mostly) should be, then adding light rail extensions to the system is a simple matter.

The only parts of the heavy rail section which do not currently exist, and therefore will need to be restored, are:

- Maesteg – Blaen Rhondda
- Nelson & Llancaiach – Quakers Yard
- Abertillery – Llanhilleth
- Penarth – Cadoxton

That's all. These lines all existed formerly, and their alignments are still largely intact. No actual new build is proposed.

The Bassaleg Junction – Machen line still exists, as far as Machen Quarry, and carries a mineral service. The Ystrad Mynach – Bedlinog line still exists, with a rather erratic open-cast coal recovery traffic from Tai Cwm Bargoed (map reference SO080062), some 5 miles north of Bedlinog (but 5 miles of pure

moorland, so little point in extending beyond Bedlinog). Track is still in place on the Aberdare – Rhigos route as far as SN942065, just 1 mile before Rhigos; I don't know if it's actually still in use.

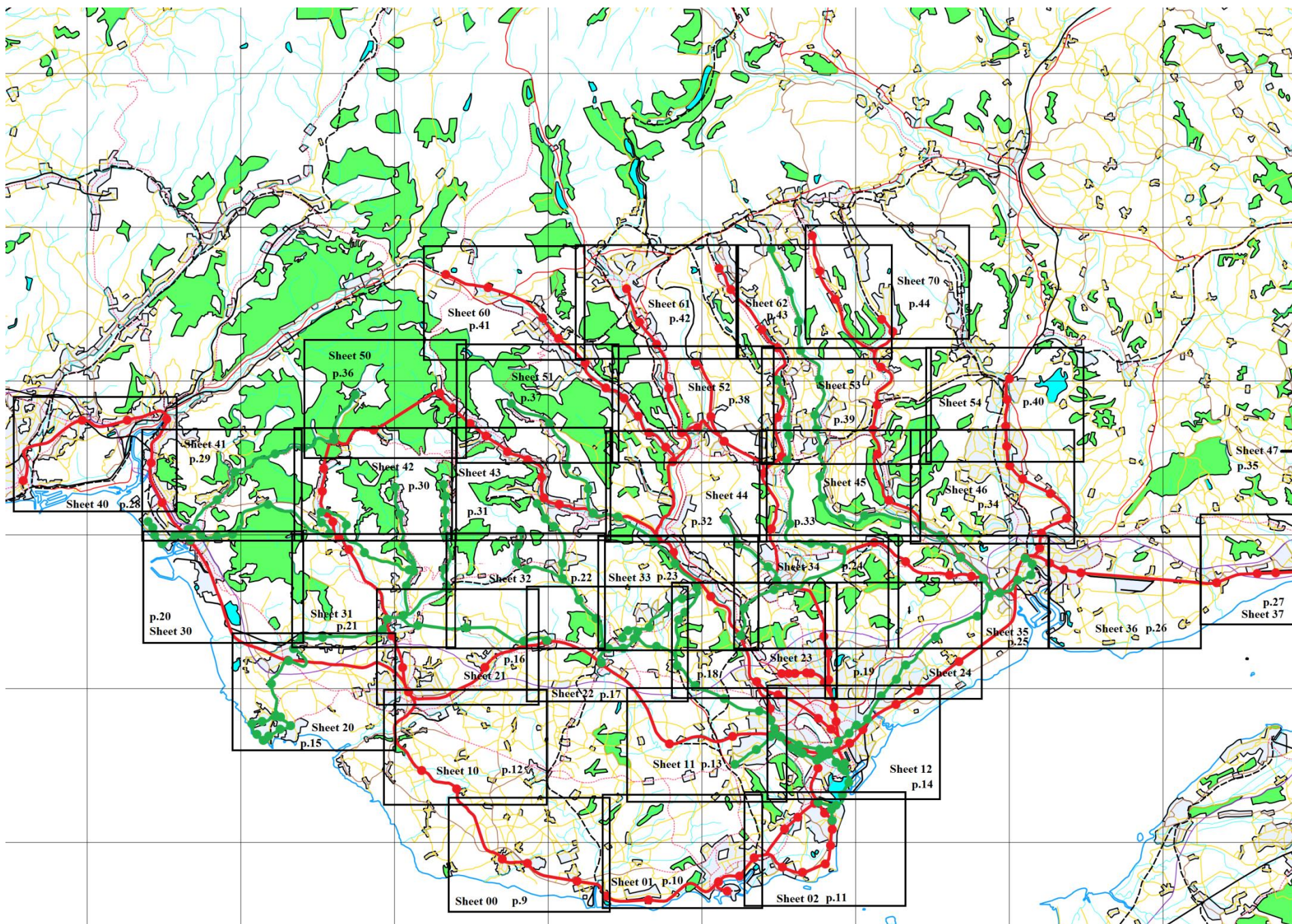
The existing Valley Lines, and services on the main line, are clearly the sections to be implemented first, followed by restoration of the sections in the above list.

Provided that we have actually implemented most (i.e. all except the Eastern Valleys group) of the Valley Lines services with tram-trains, then the light rail extensions can all be implemented as simple add-ons, in any convenient order. Those based on Cardiff, in particular the splendid route to Llantrisant, via Creigiau, and the routes through Cardiff Bay to Penarth, will probably give the best immediate return. But the Porthcawl Loop, also has a great deal to commend it, providing an unambiguously better service even after the original route has disappeared under a road.

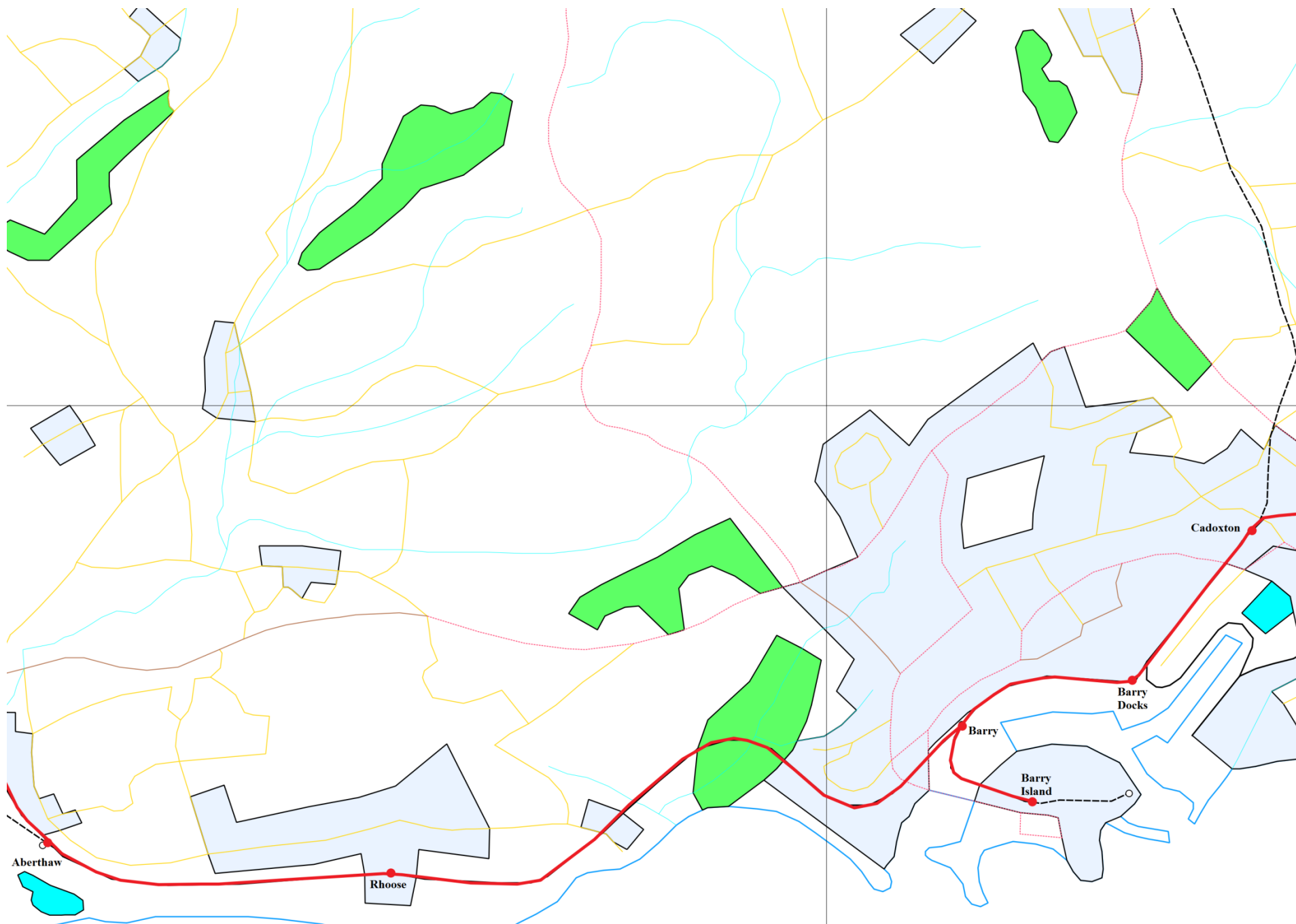
Ian Walmsley's original perception that tram-trains are ideal for the valleys is thus not merely a nice-to-have, but fundamentally critical to the type, quality and extent of the system which could be created.

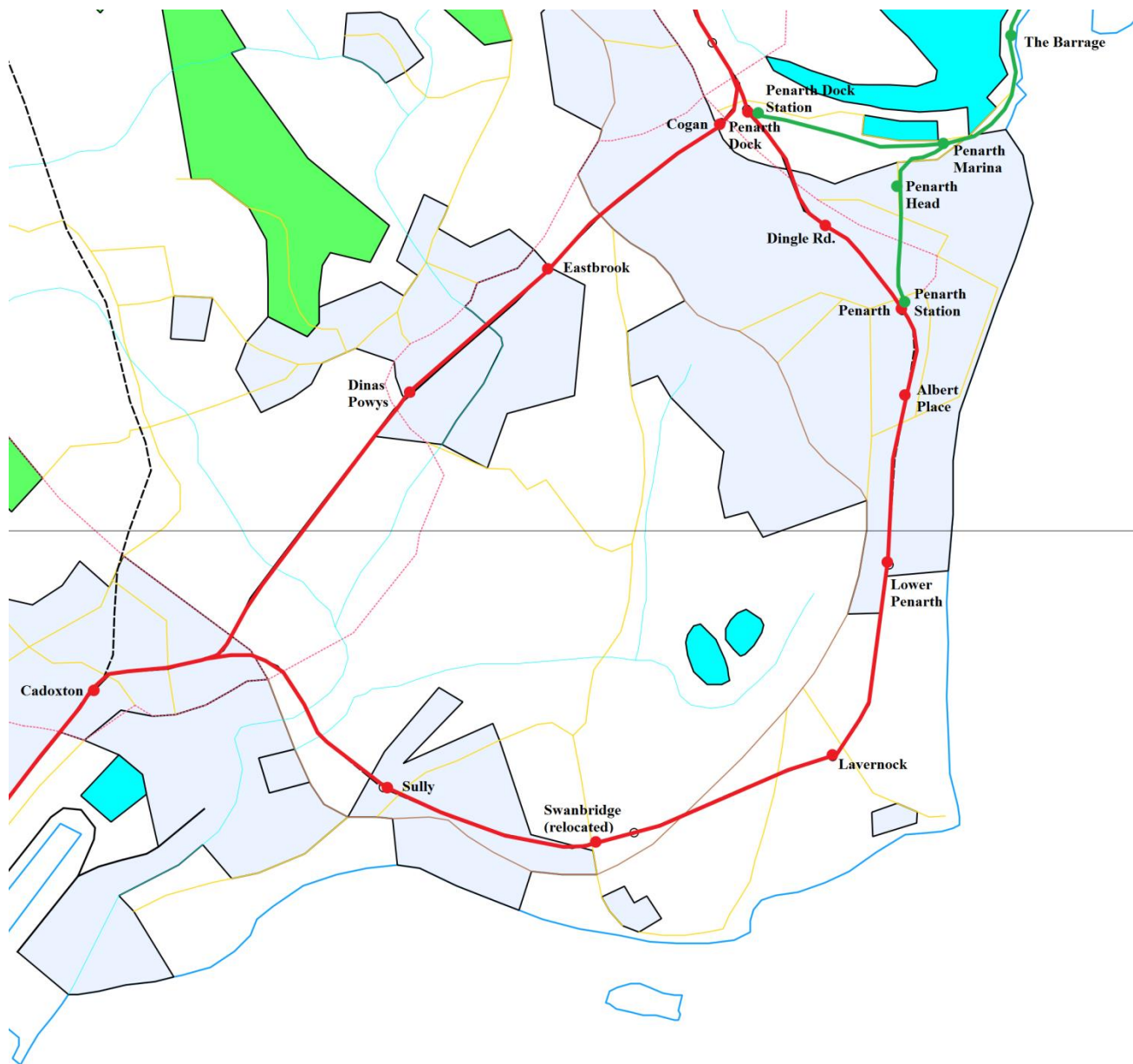
I have maintained in this article the rather artificial distinction between heavy and light rail, because it makes it all so much easier to explain – the 'heavy-rail' components are the bits to implement first, since they're (nearly all) already there, and in use. But see also appendix C, where I speculate on how the light rail components would actually be added to an already light-rail system.

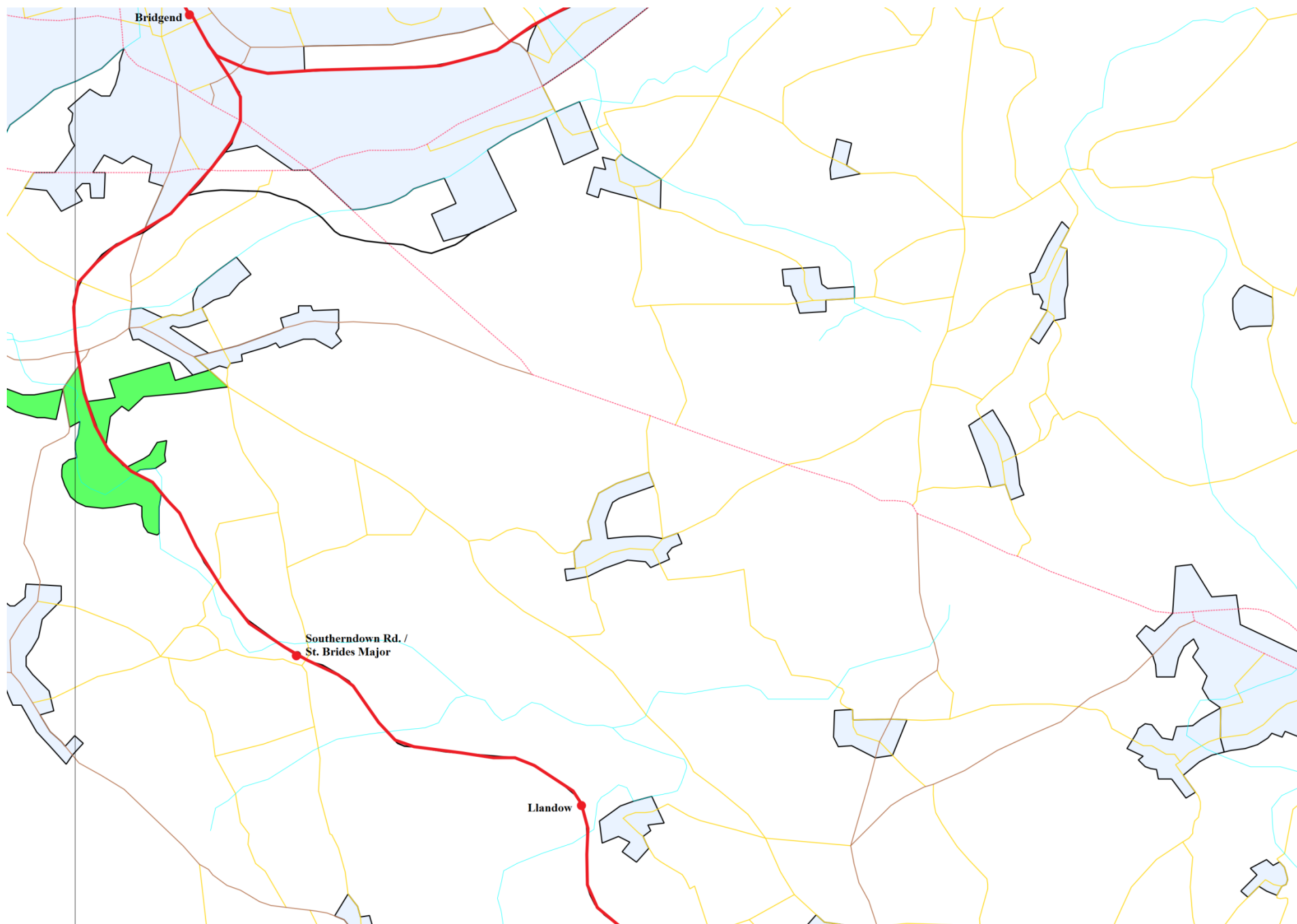
There now follows the key map, and all the detailed maps of the system.

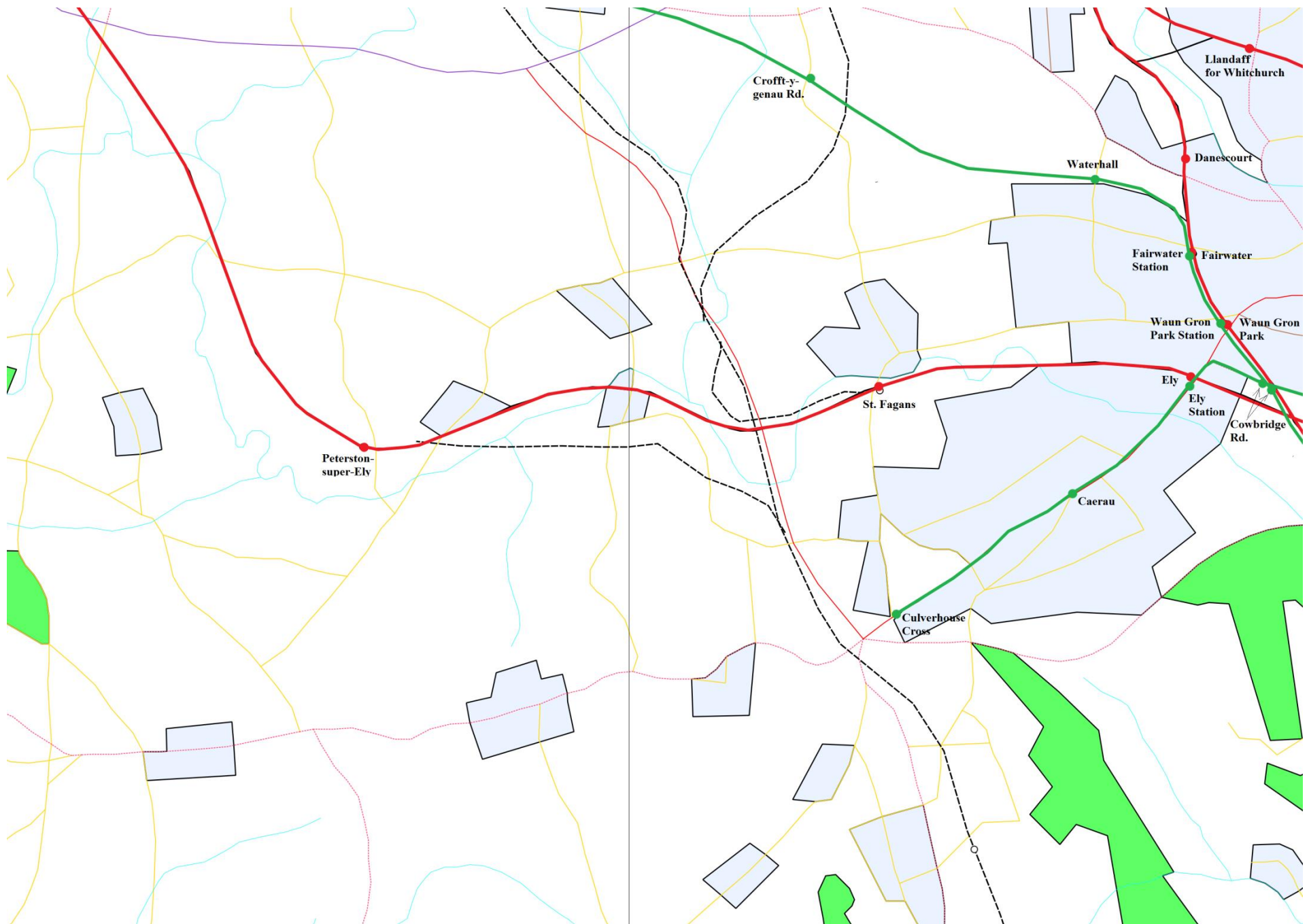


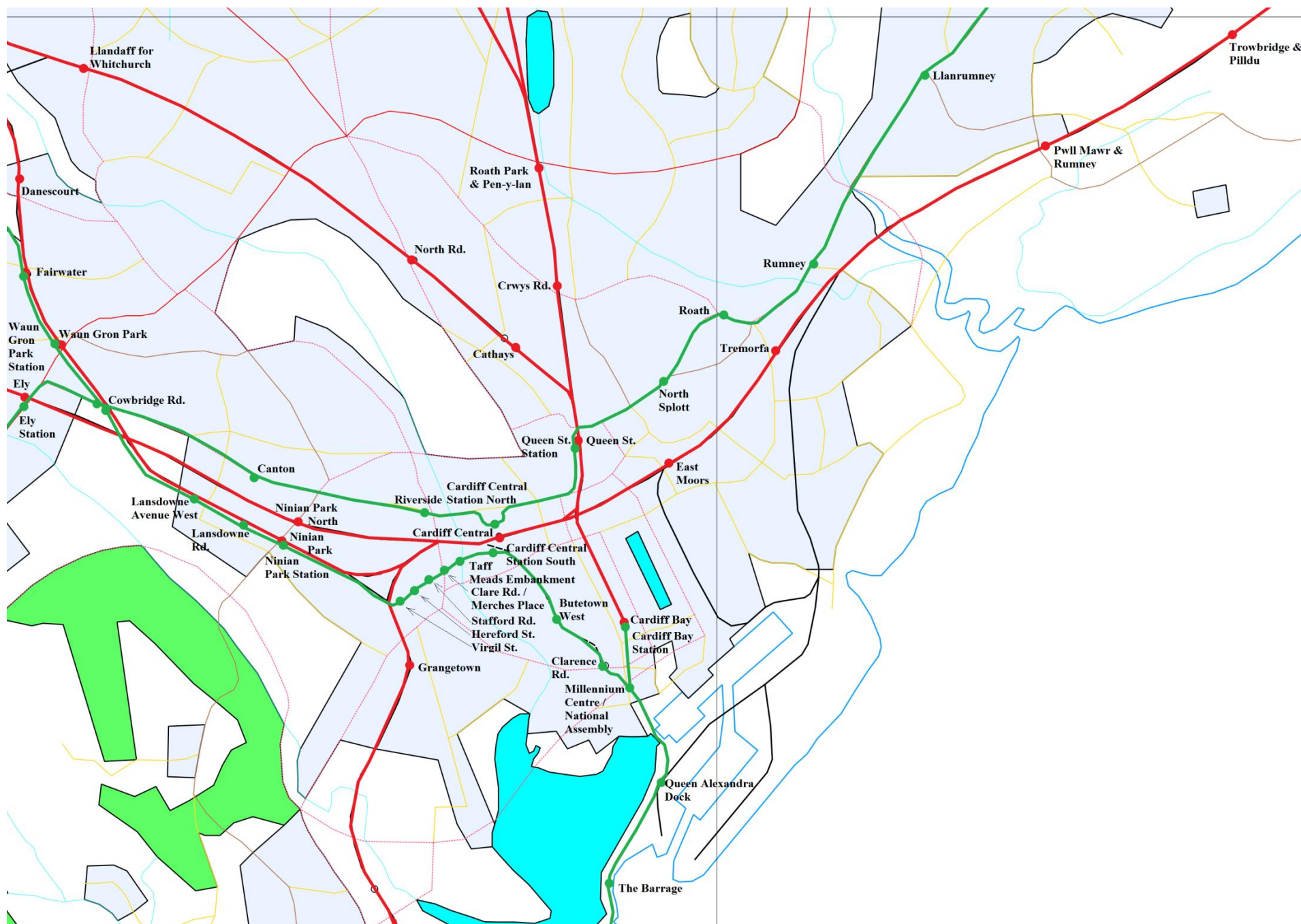


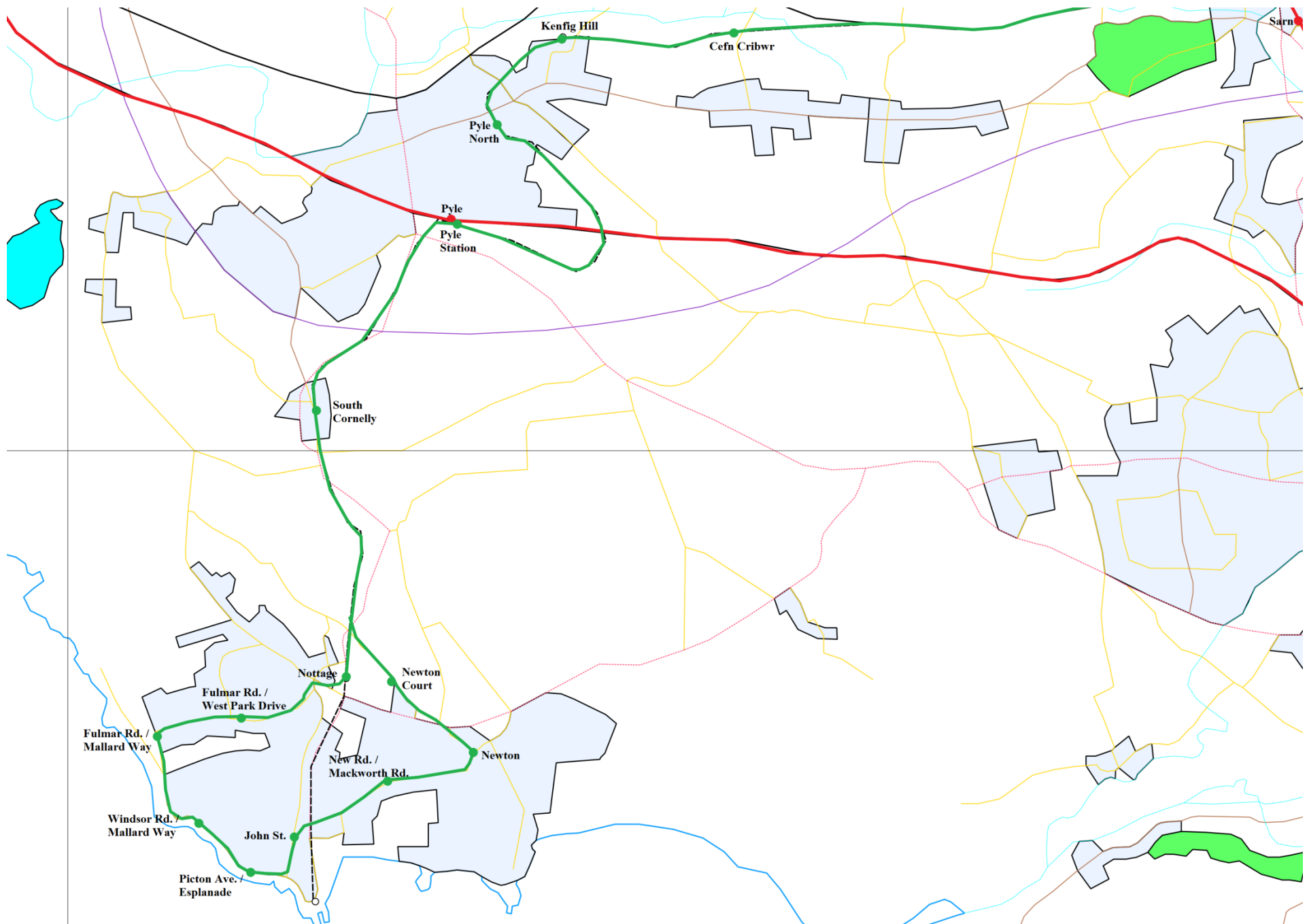


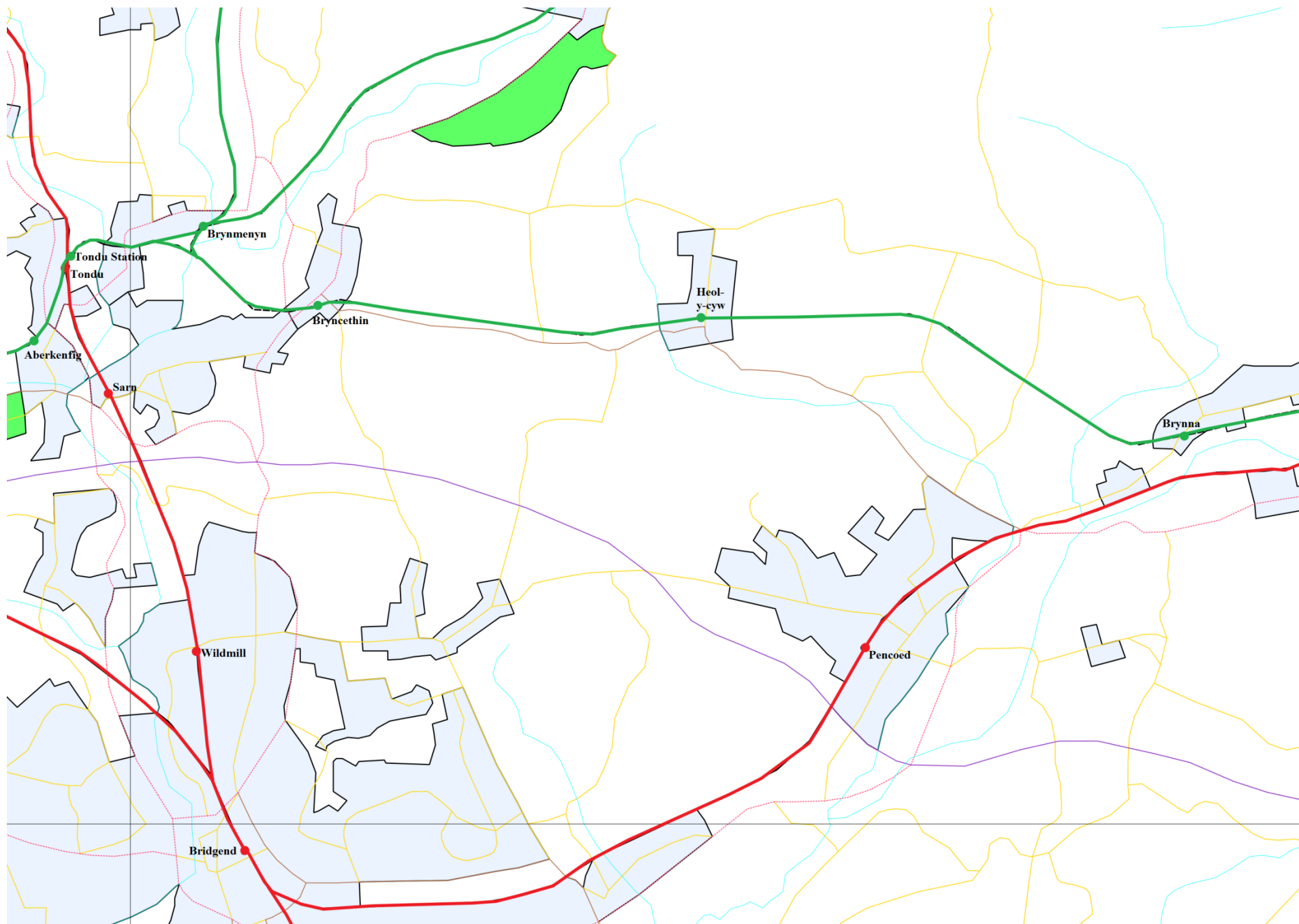


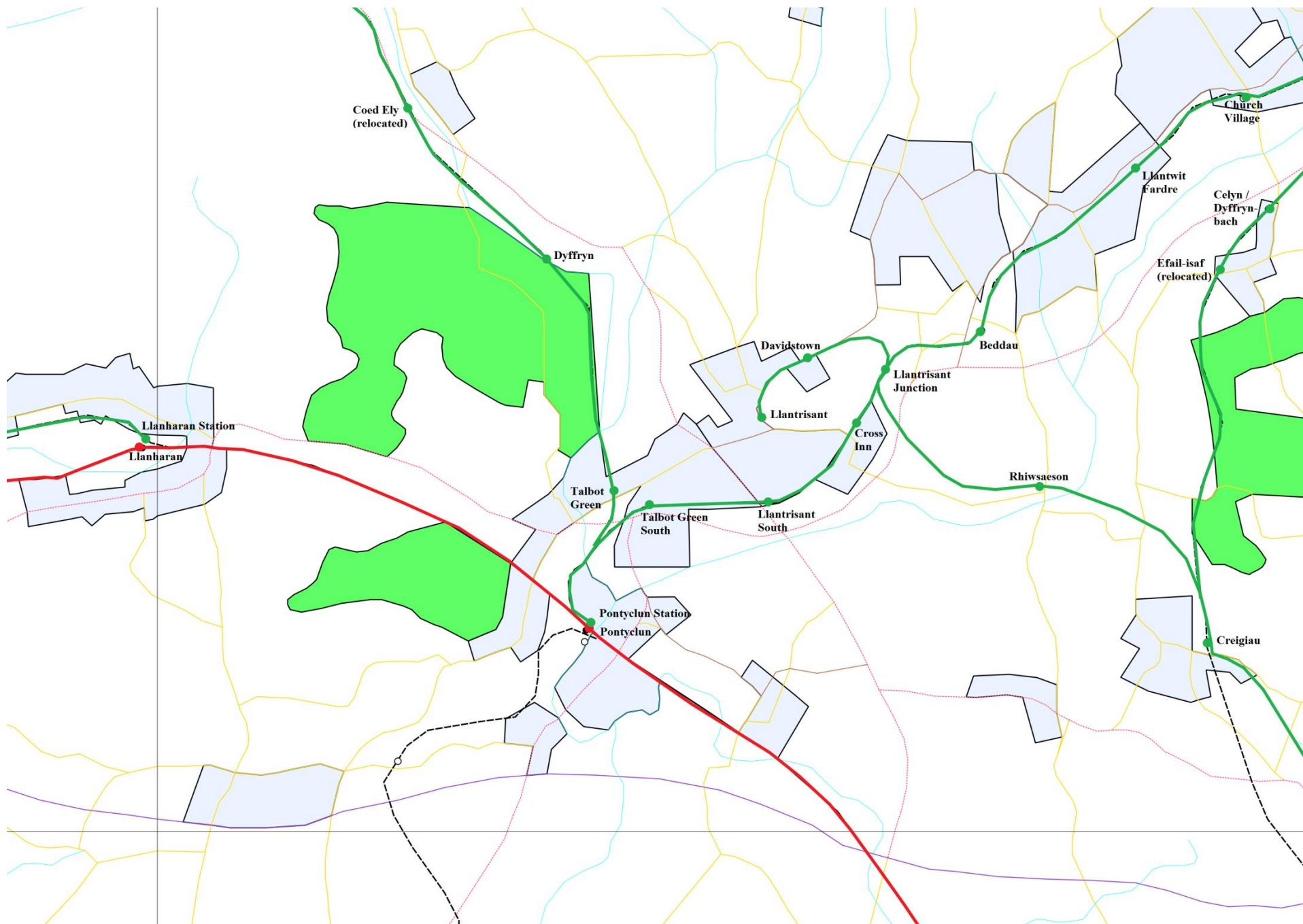


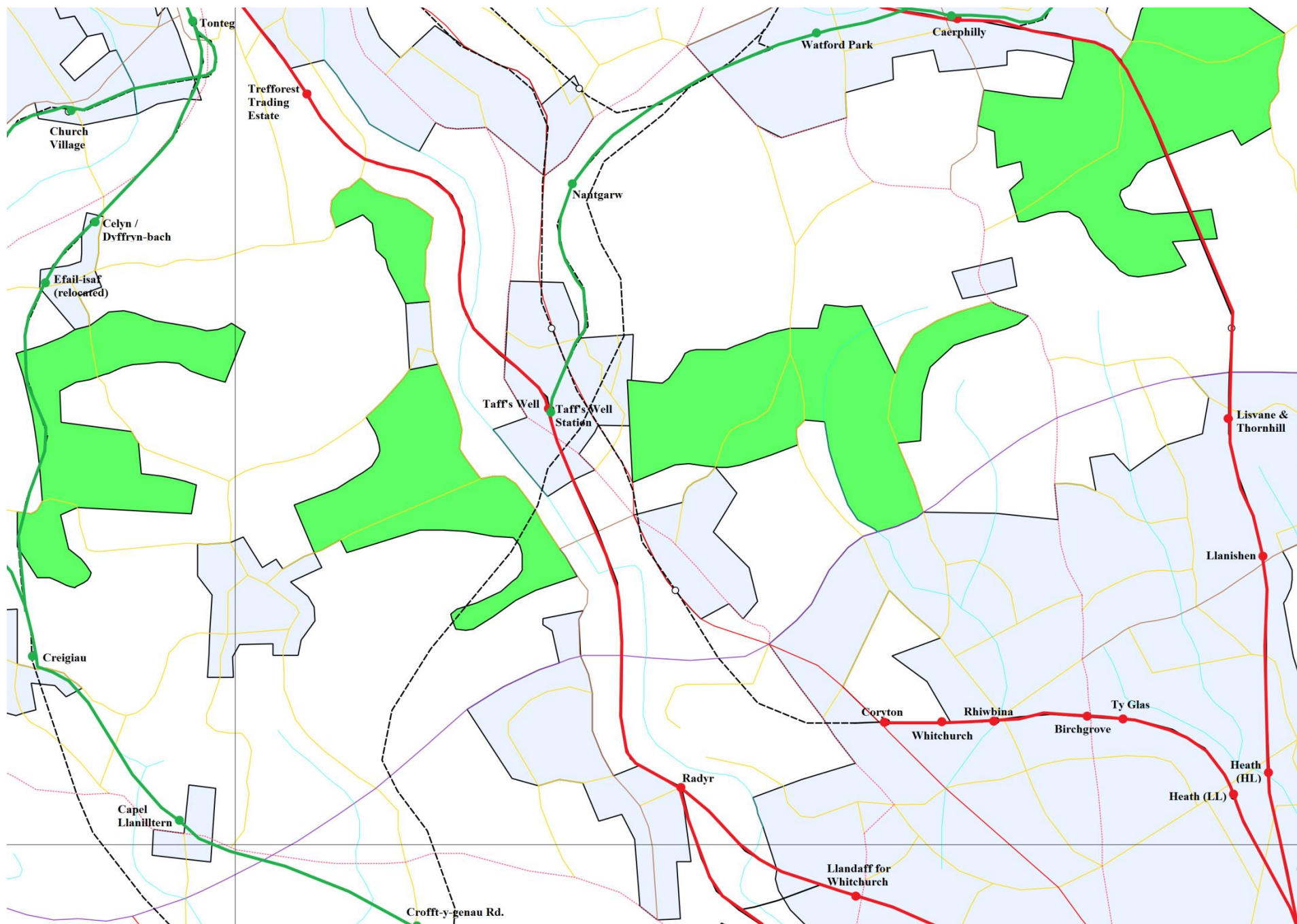


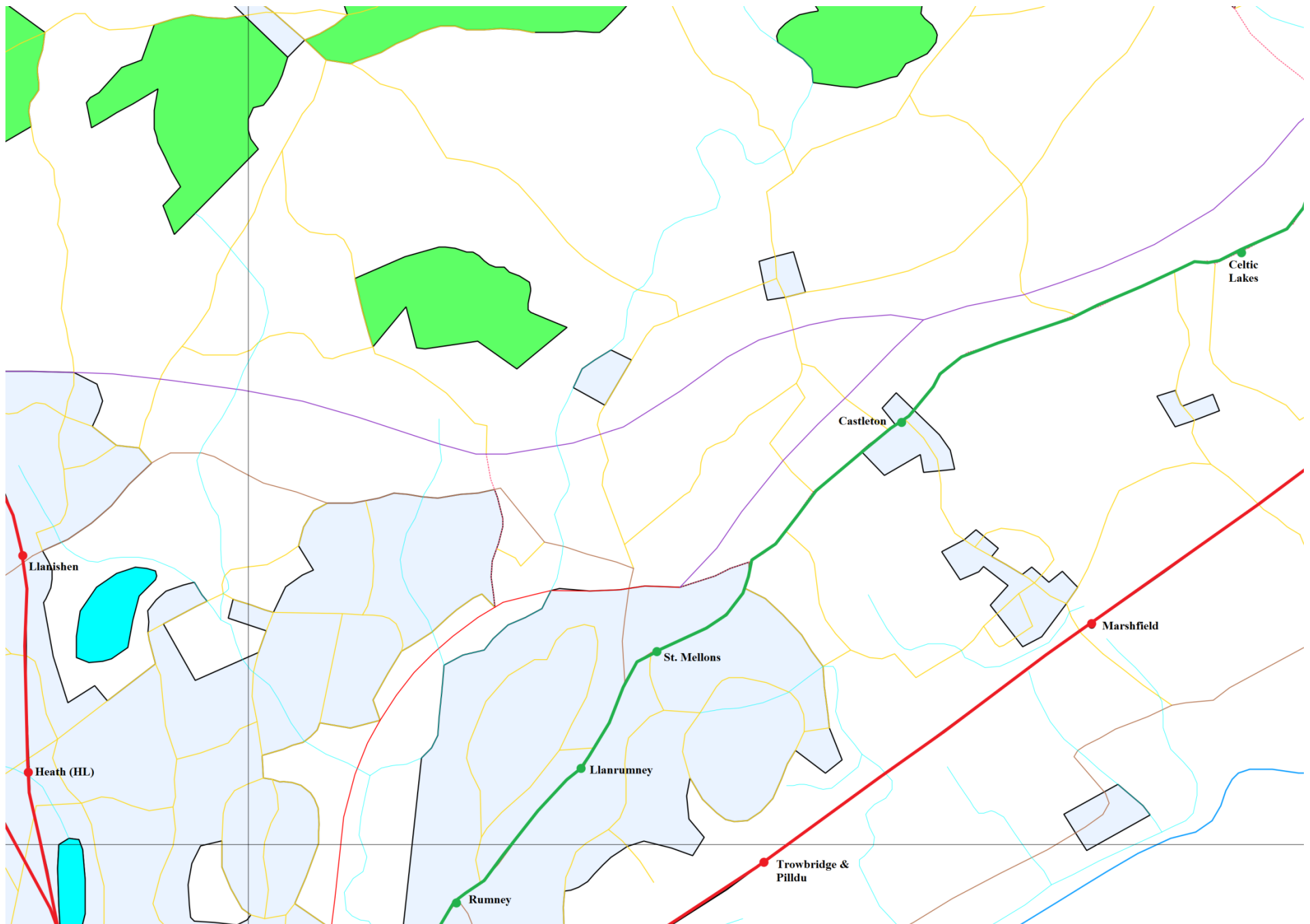


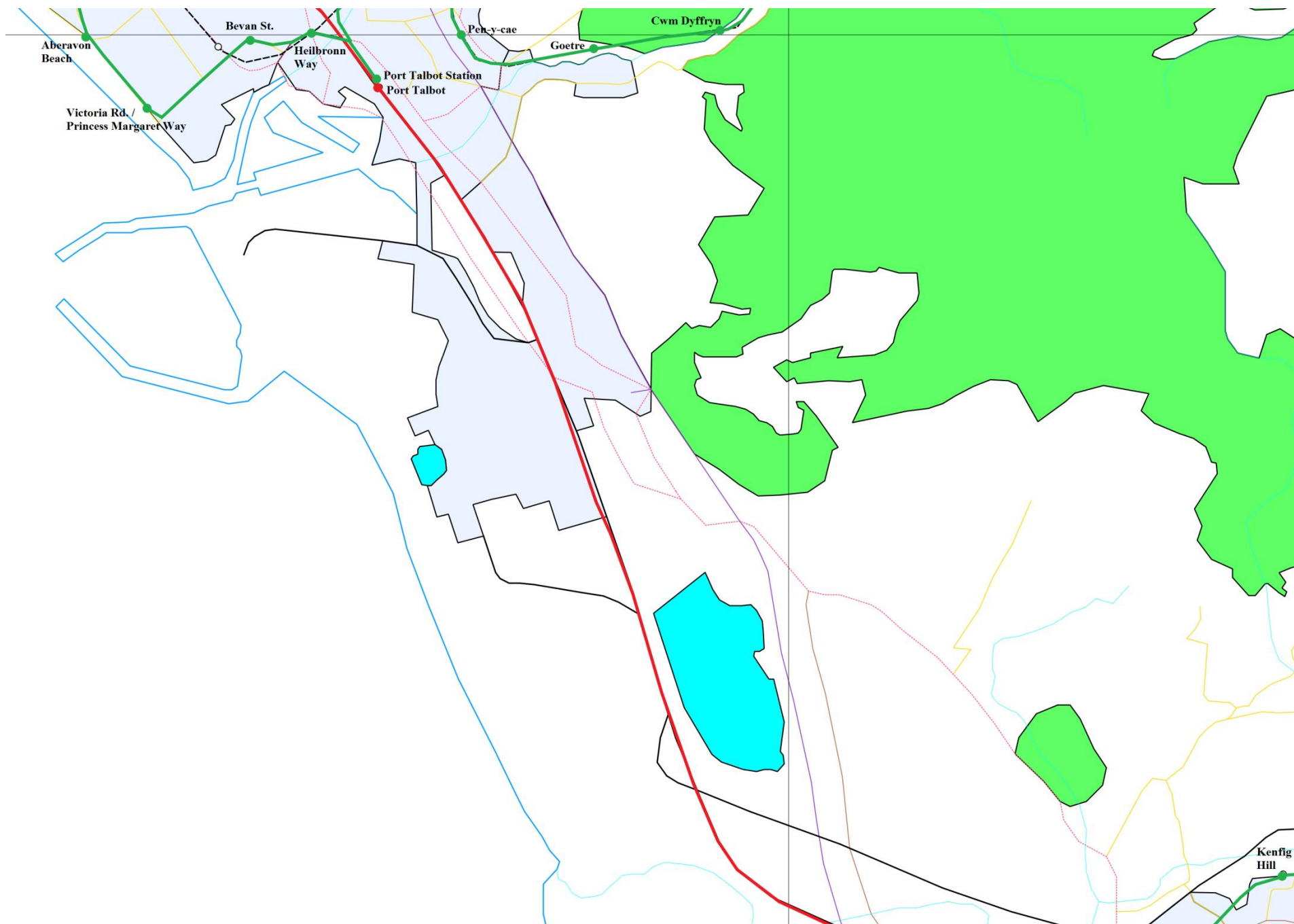


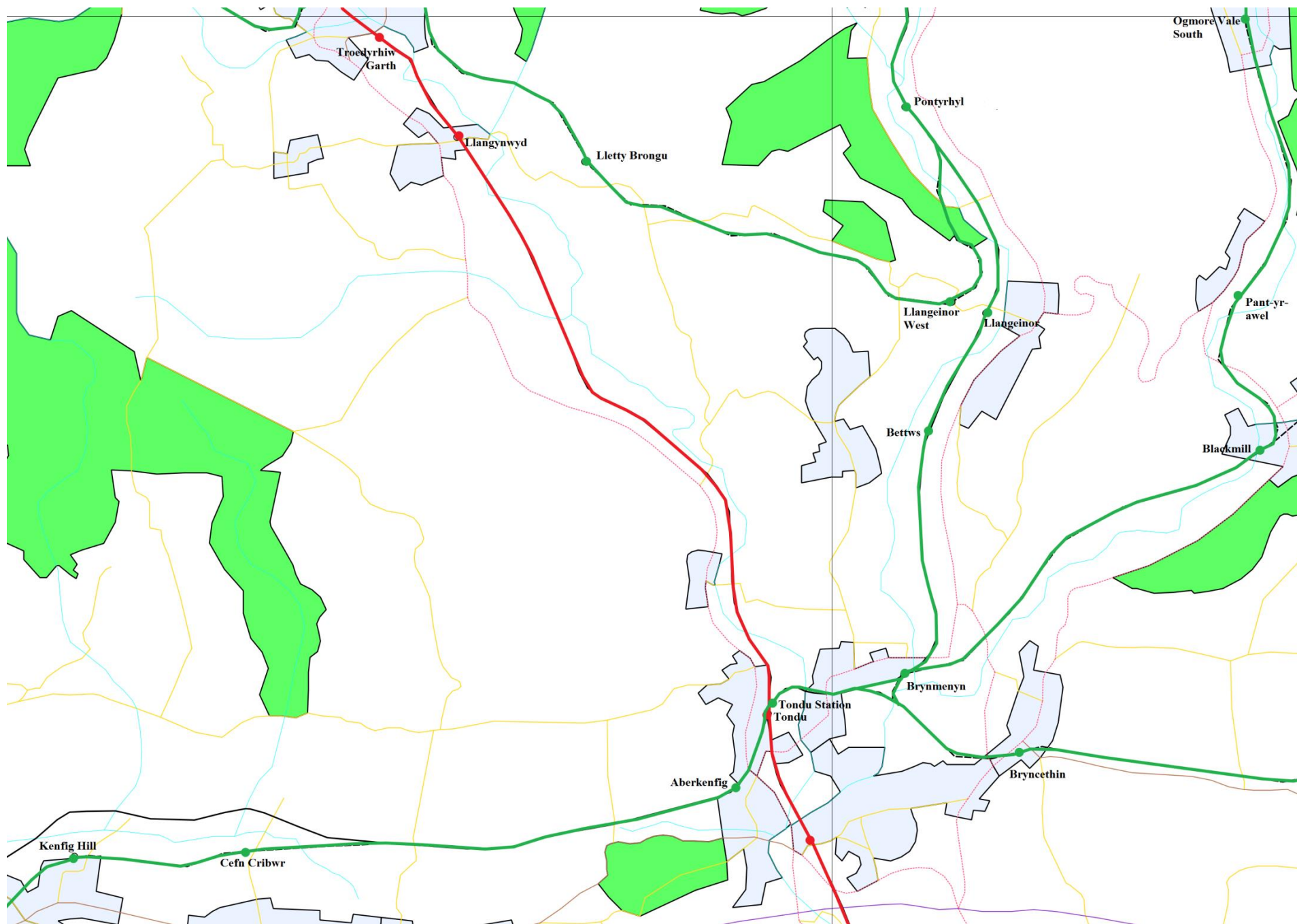


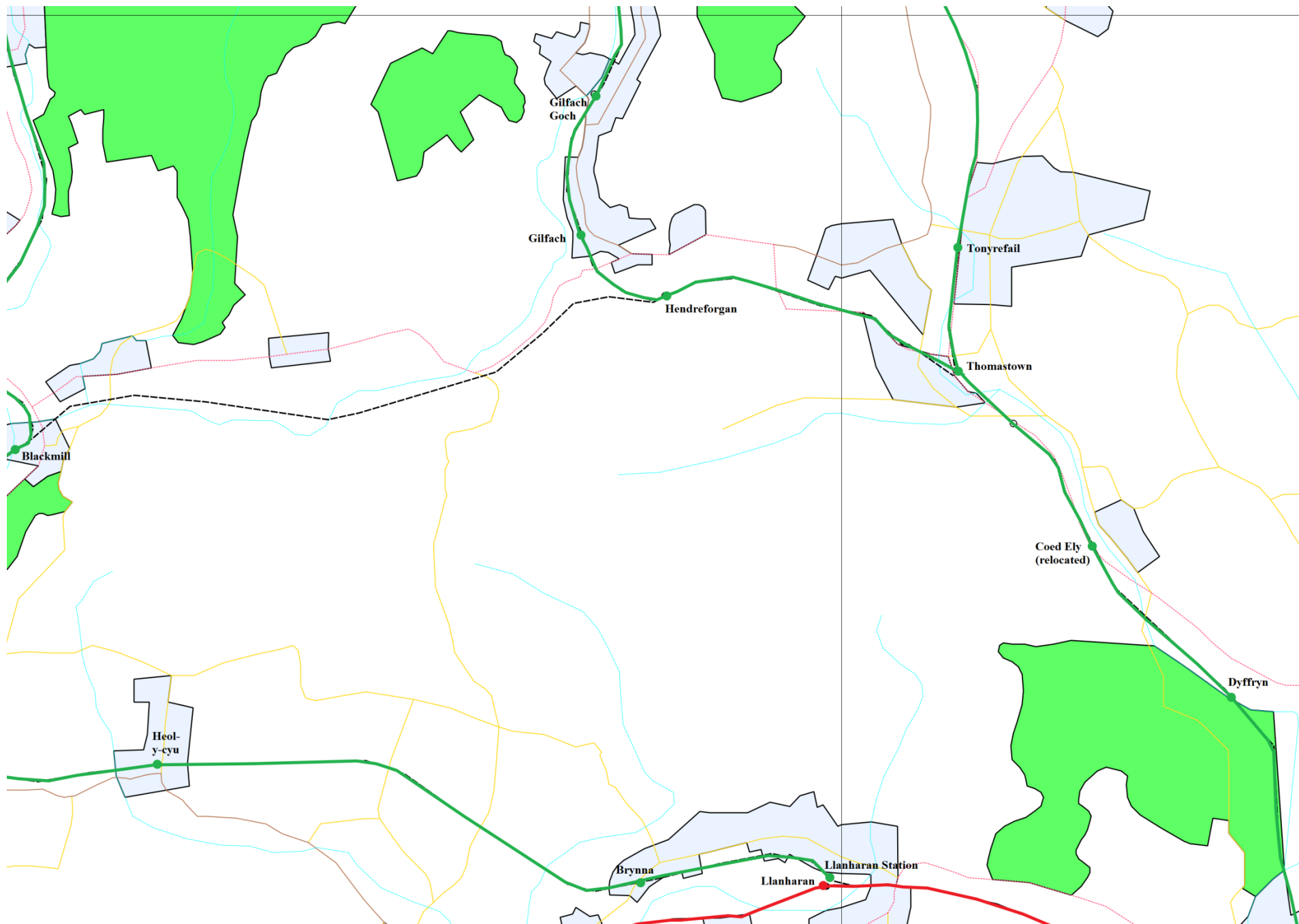


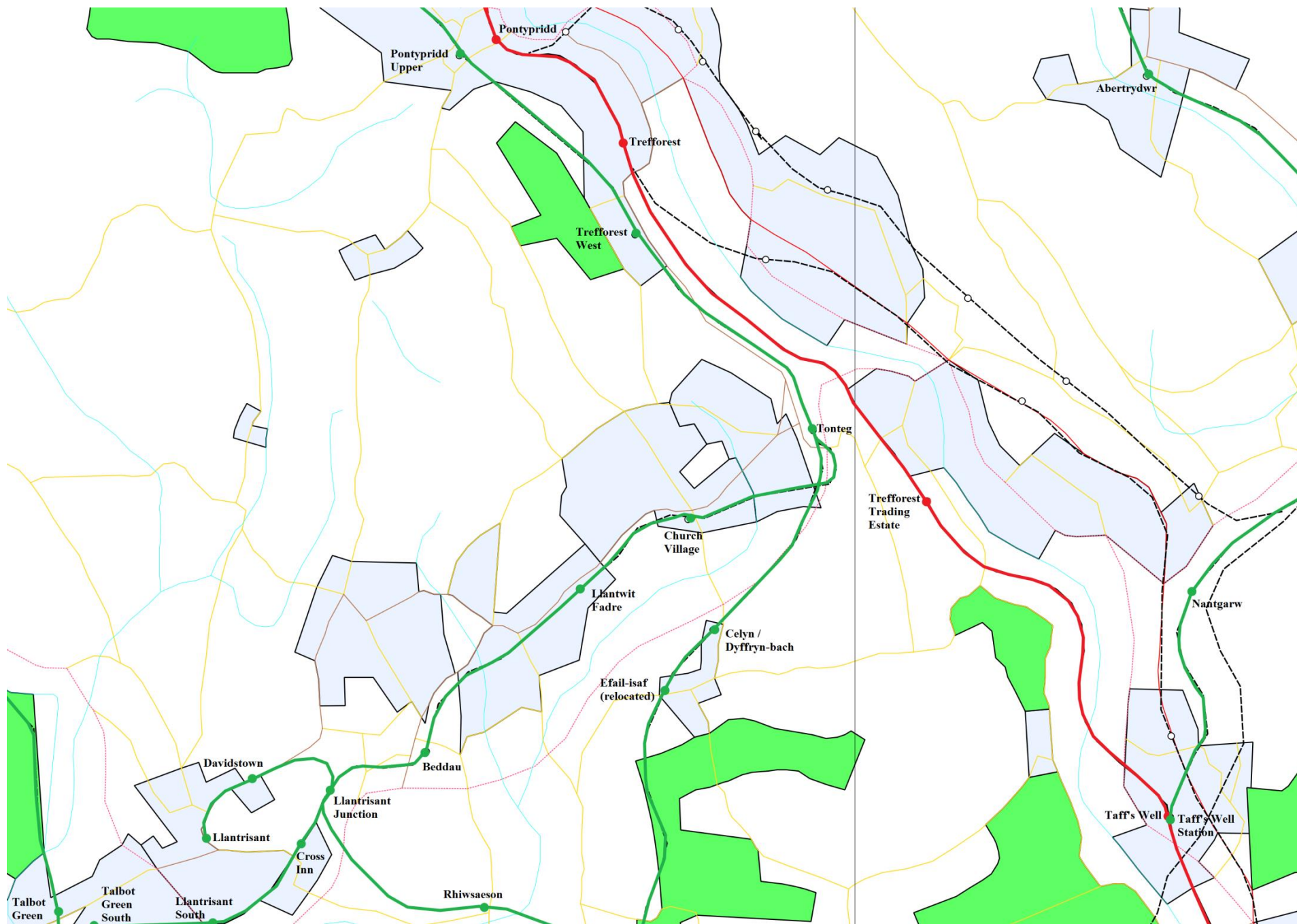


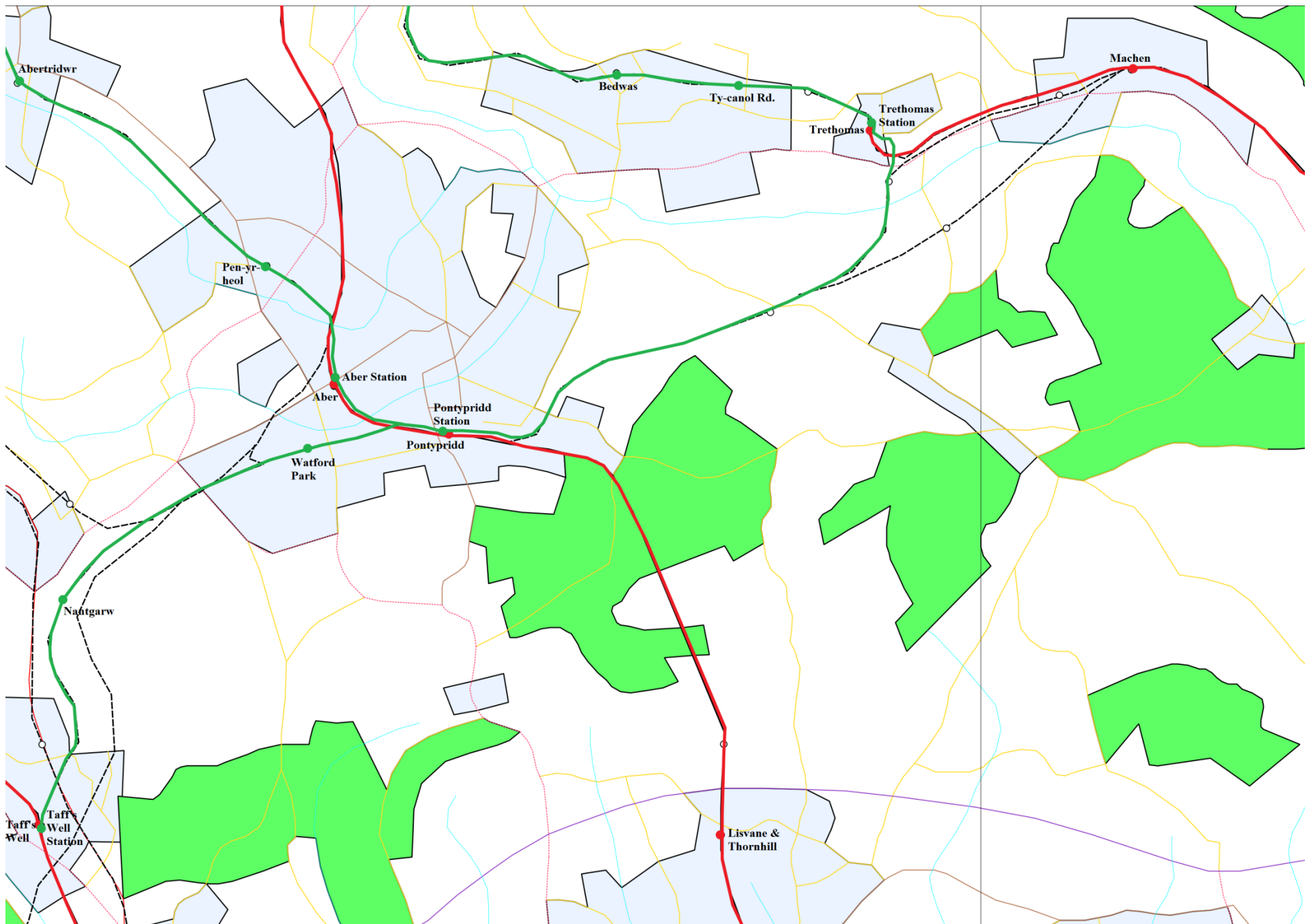


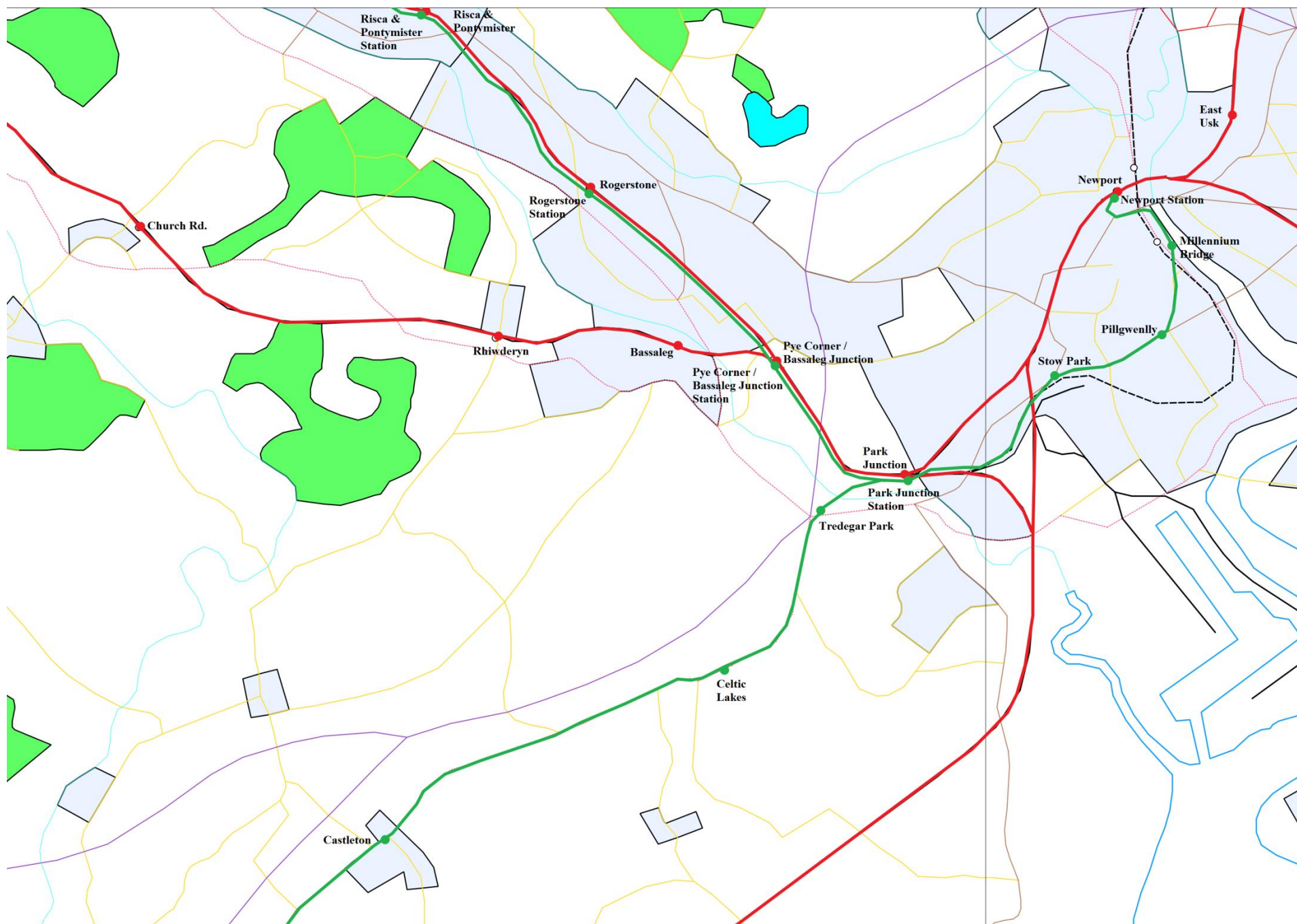


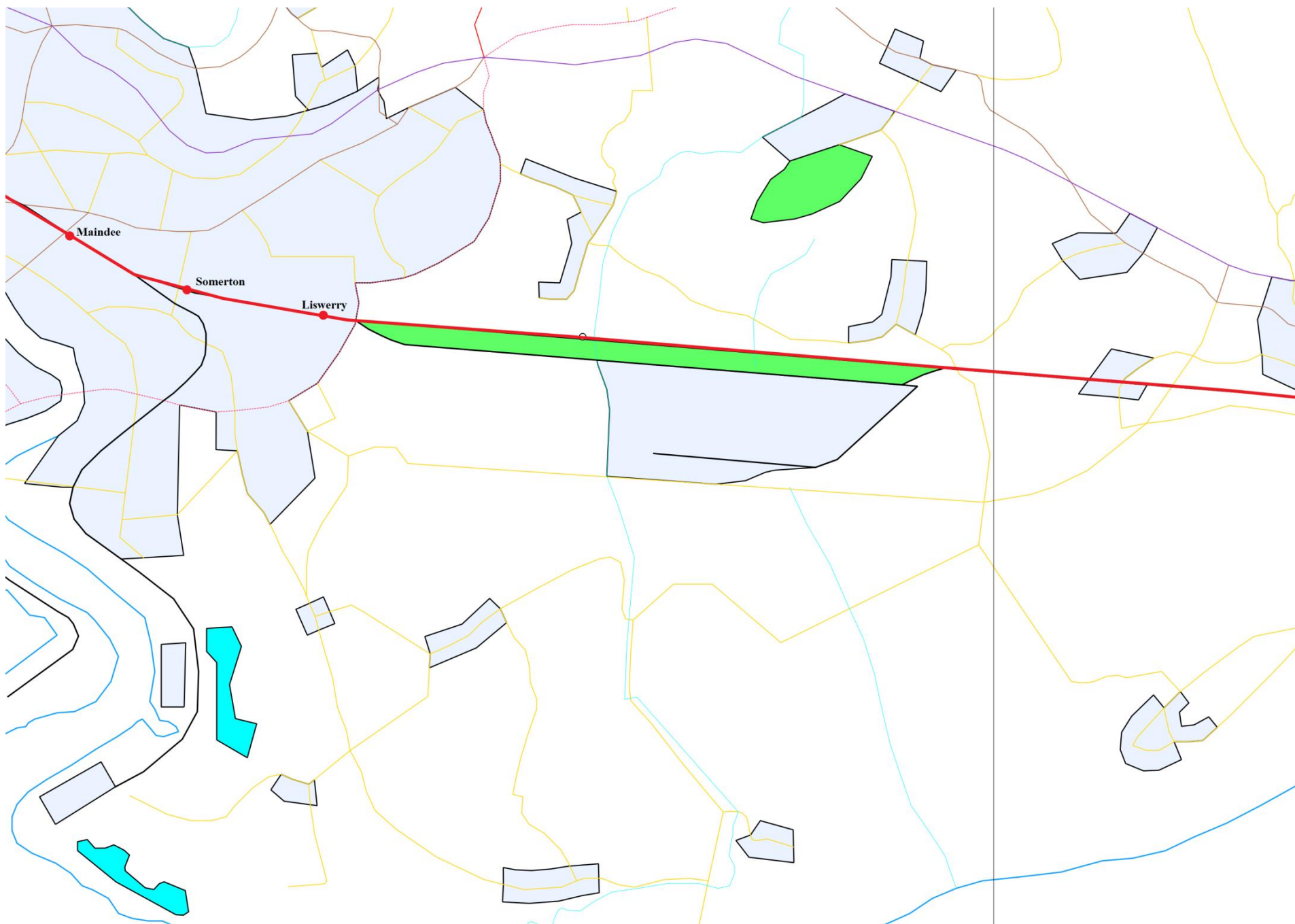


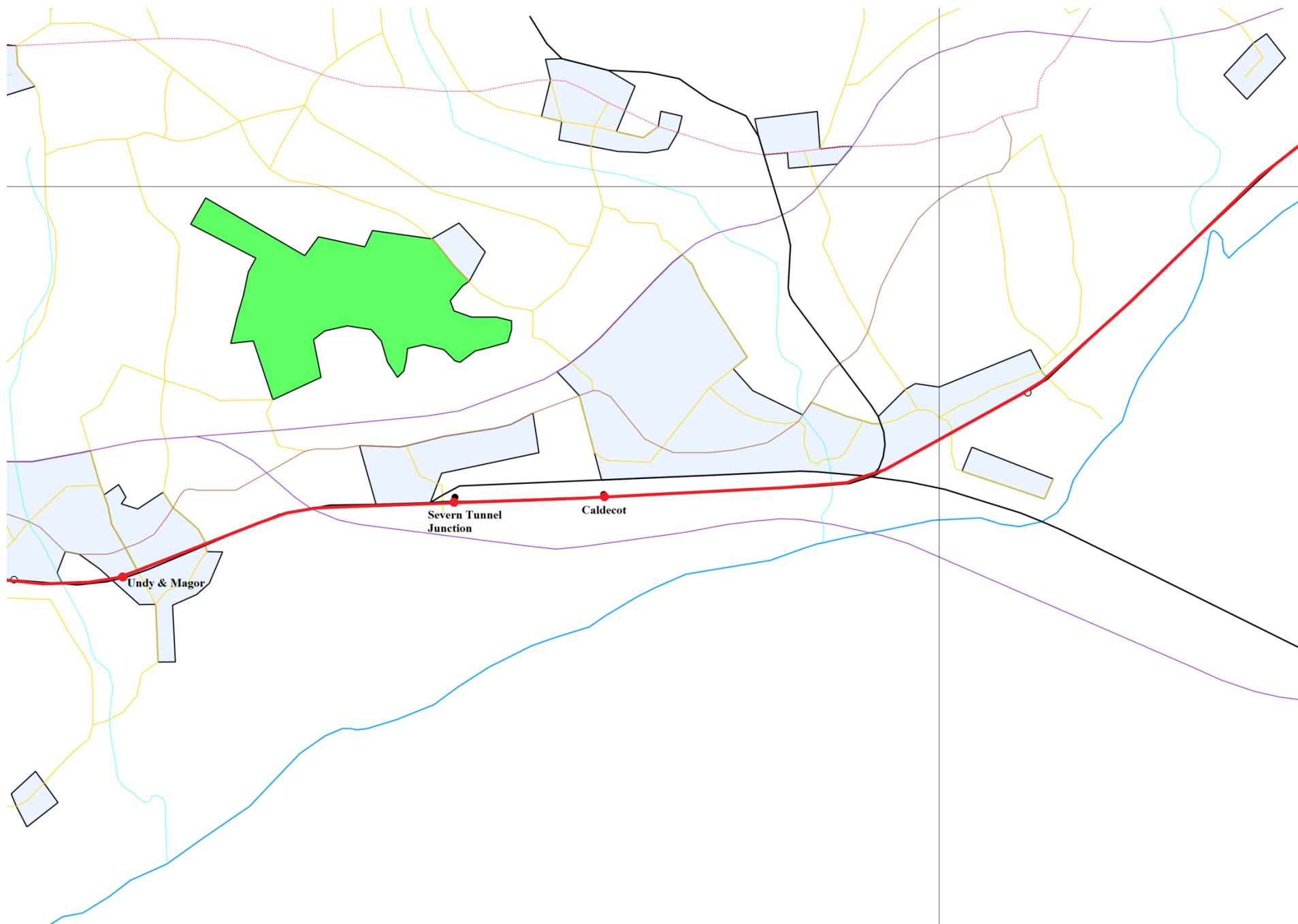


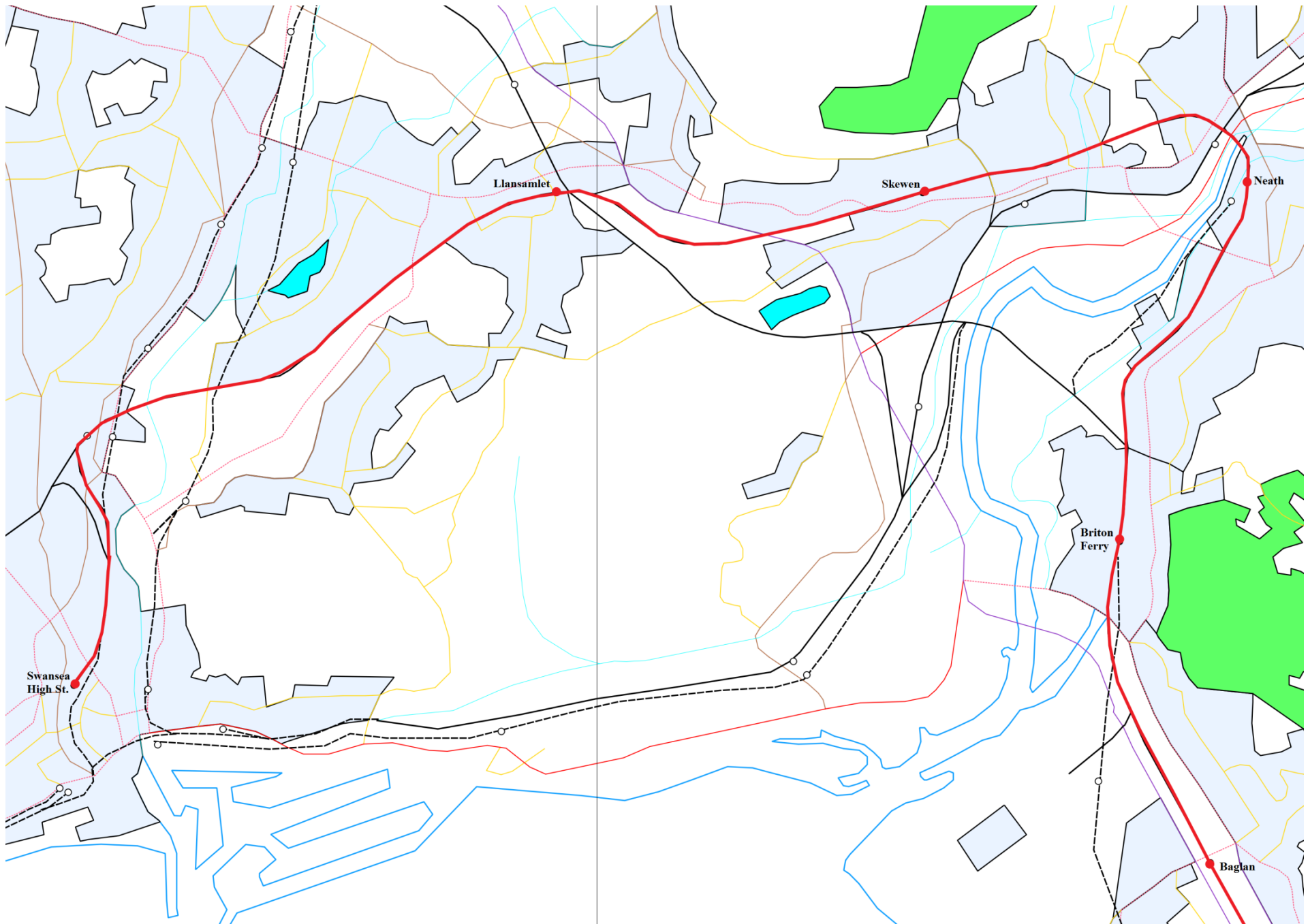


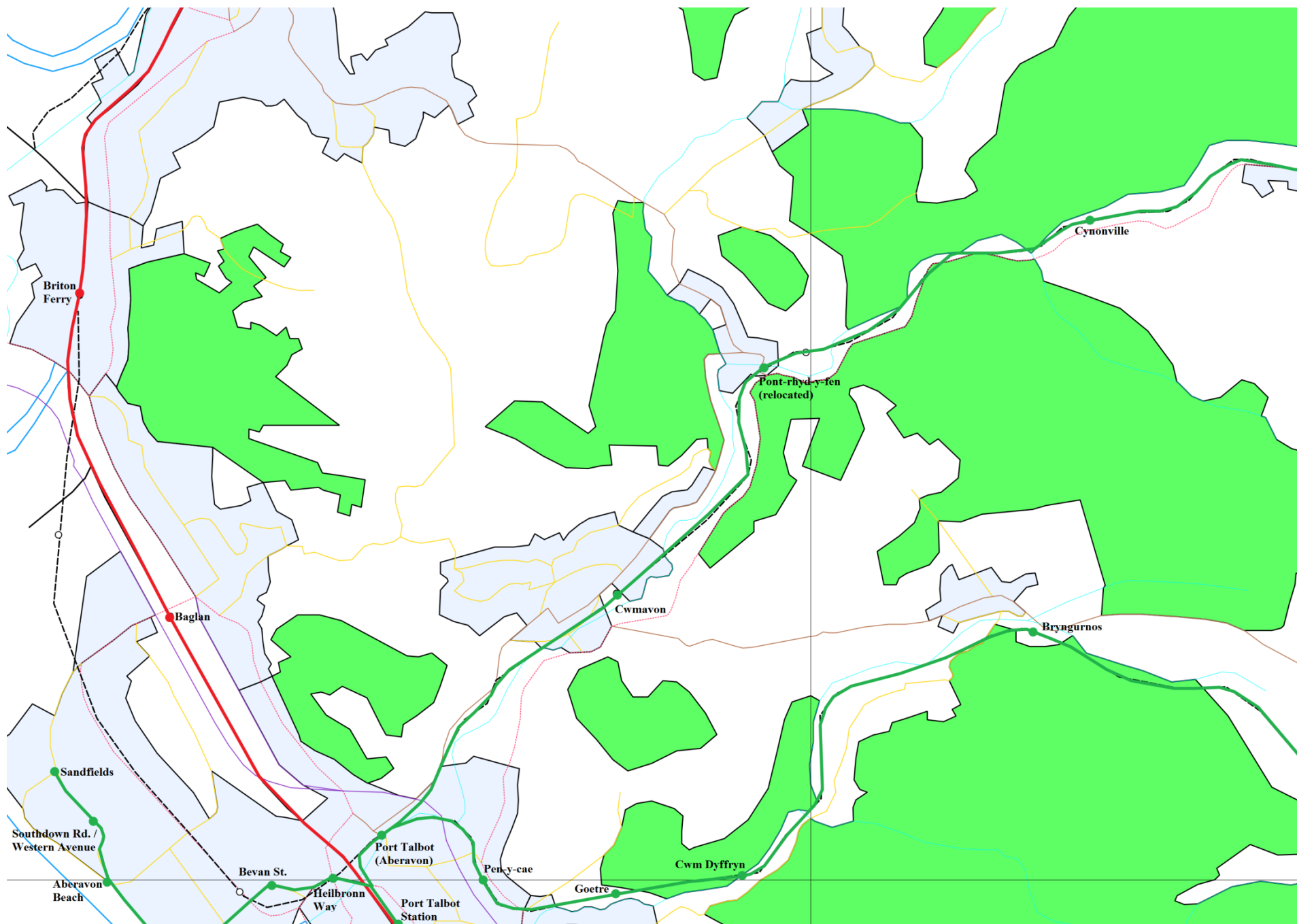


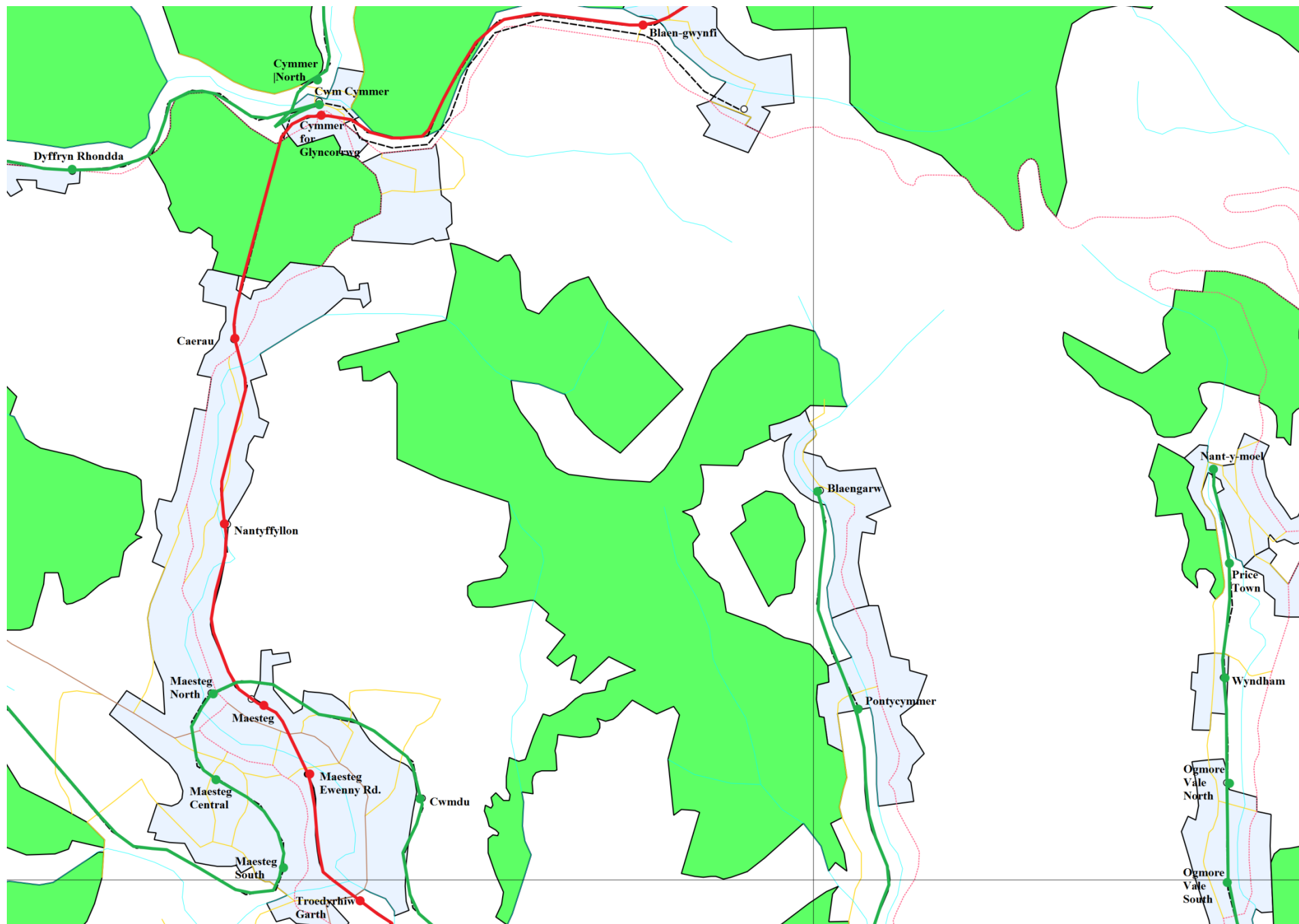


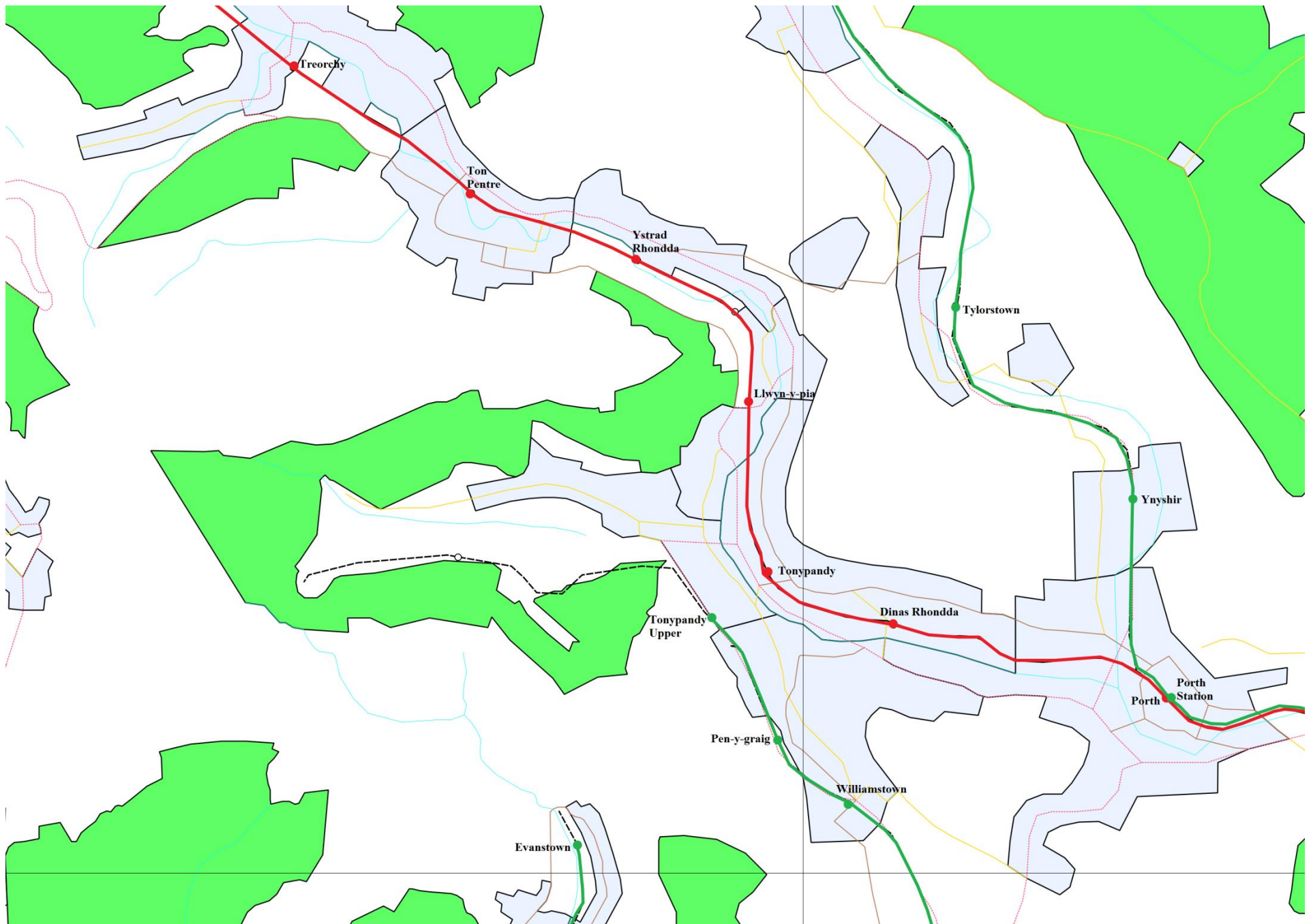


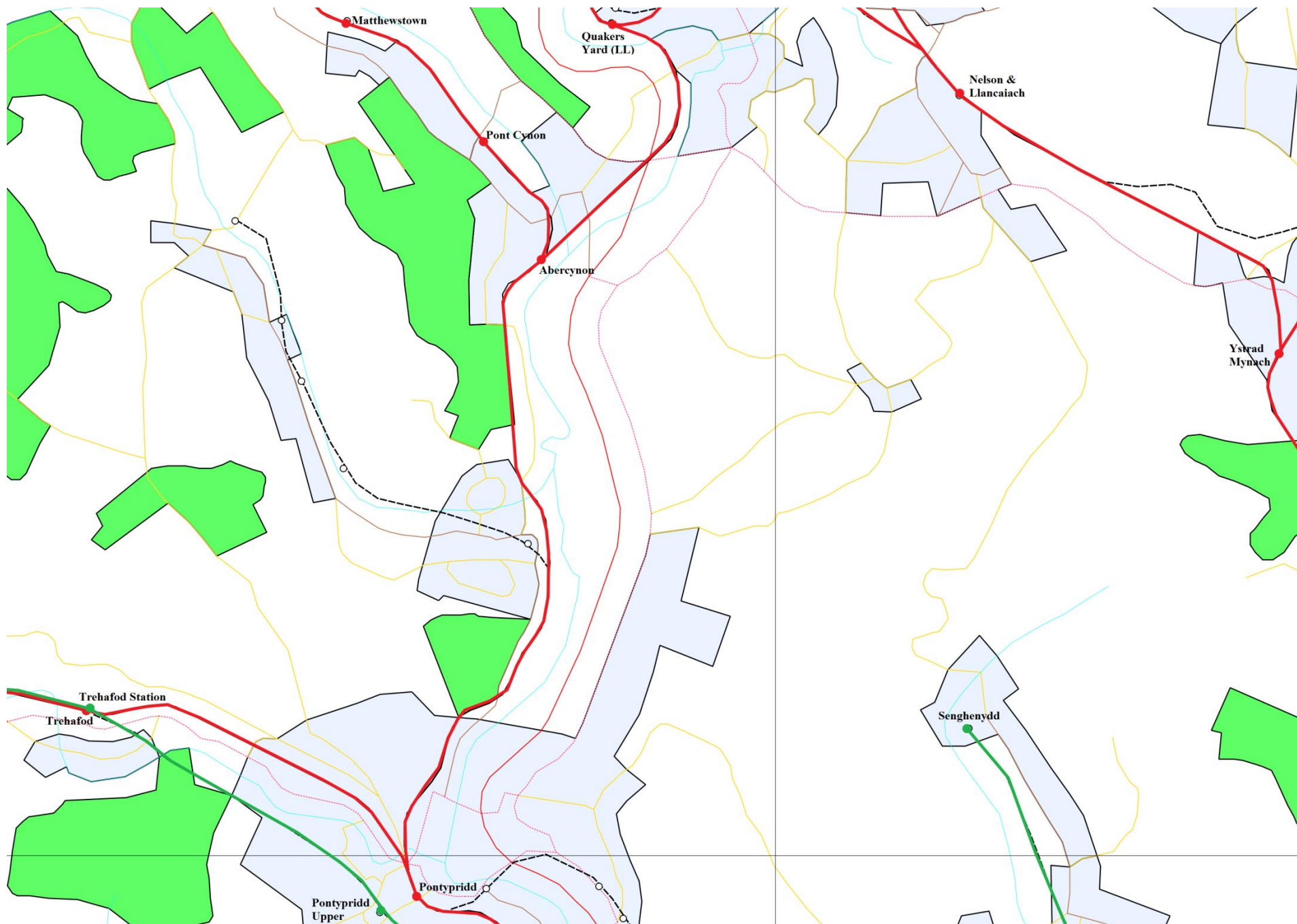


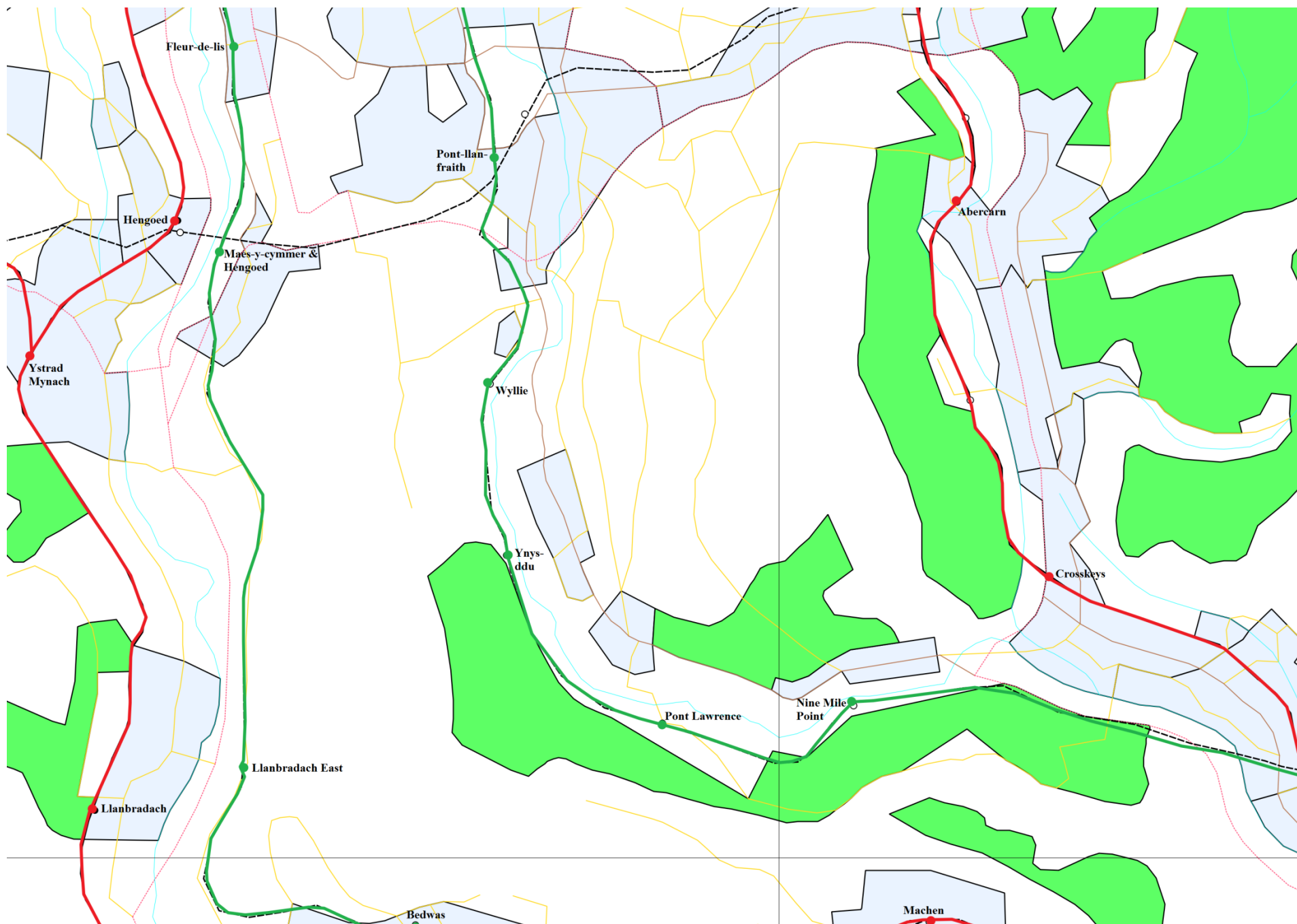


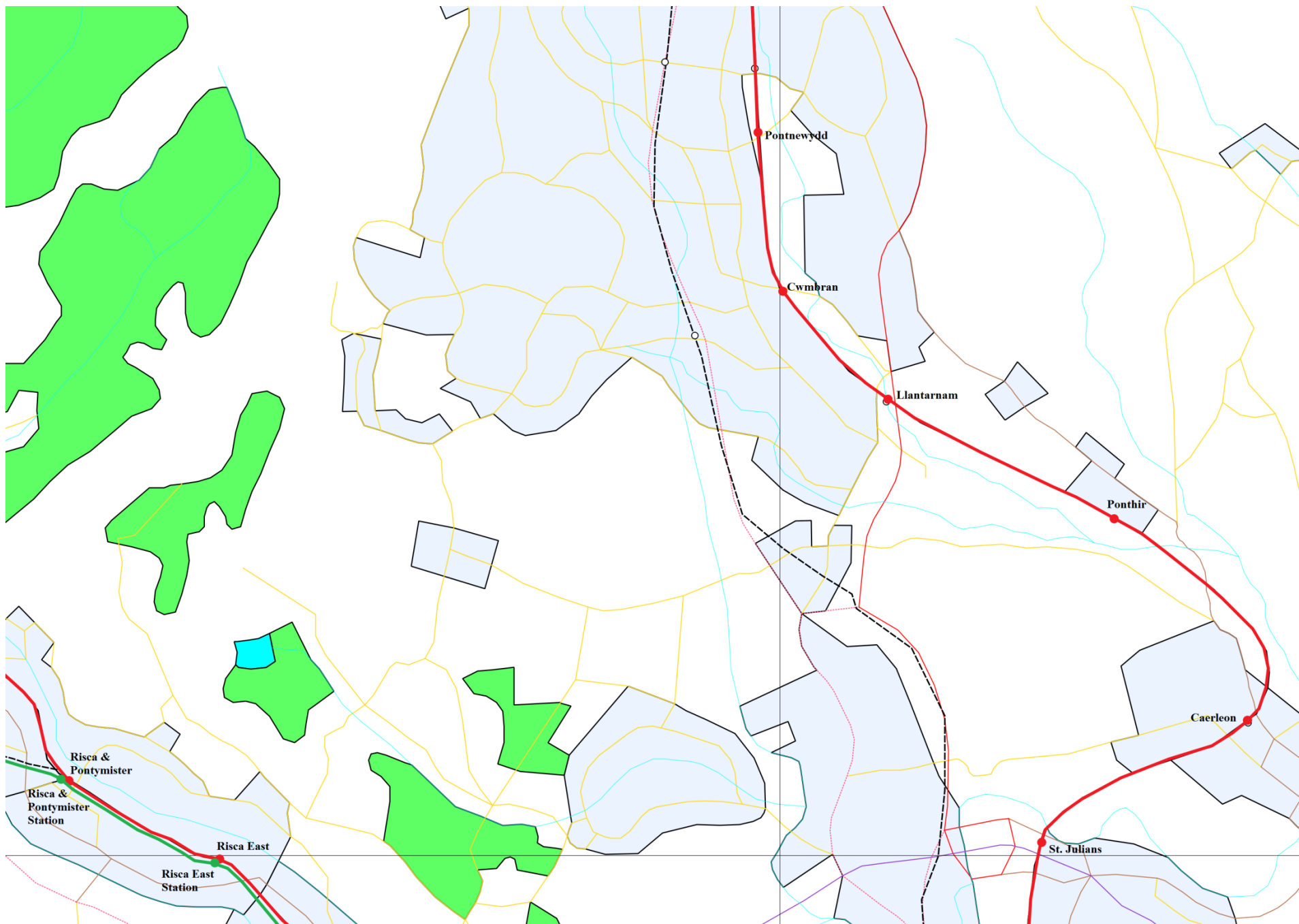


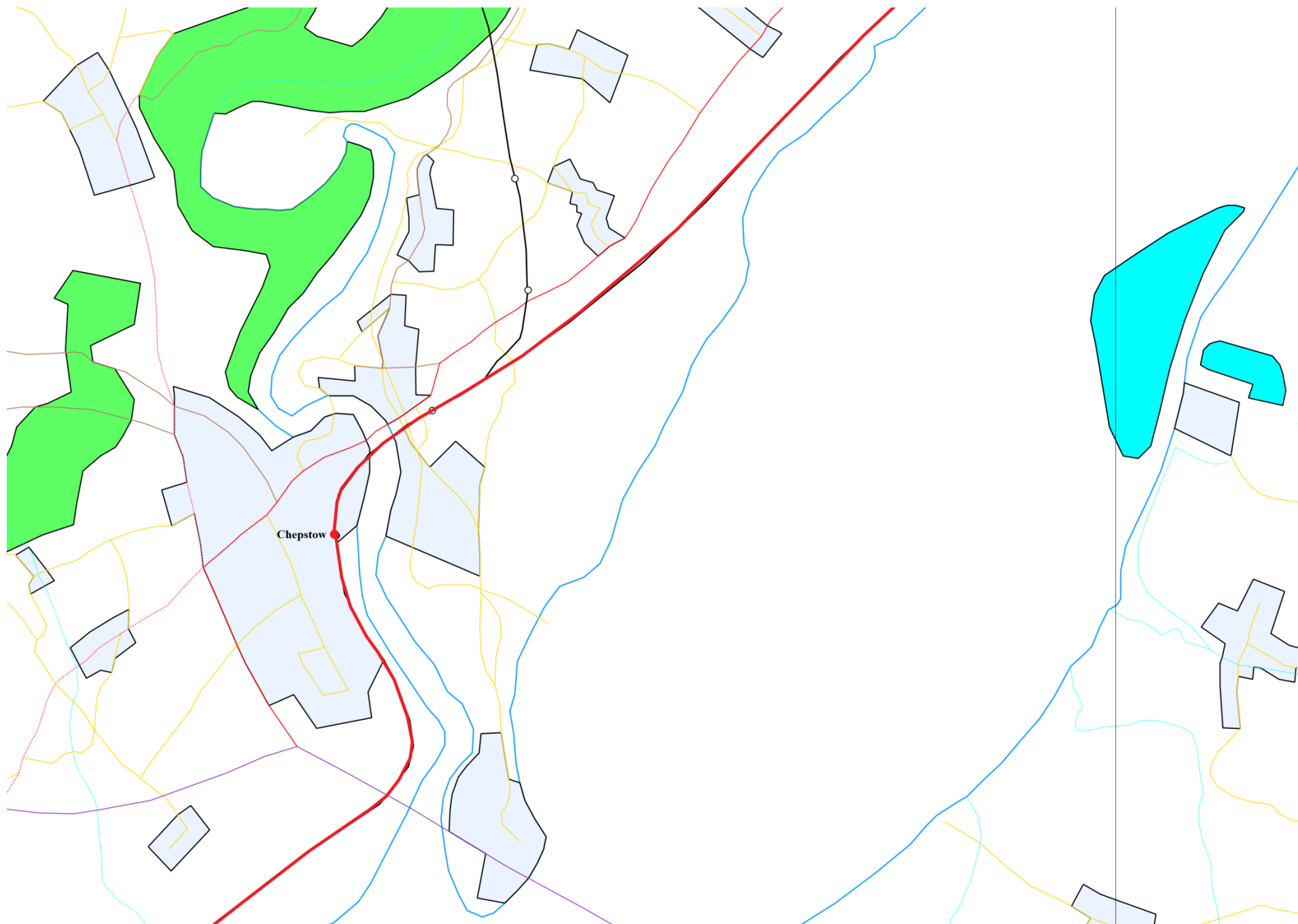


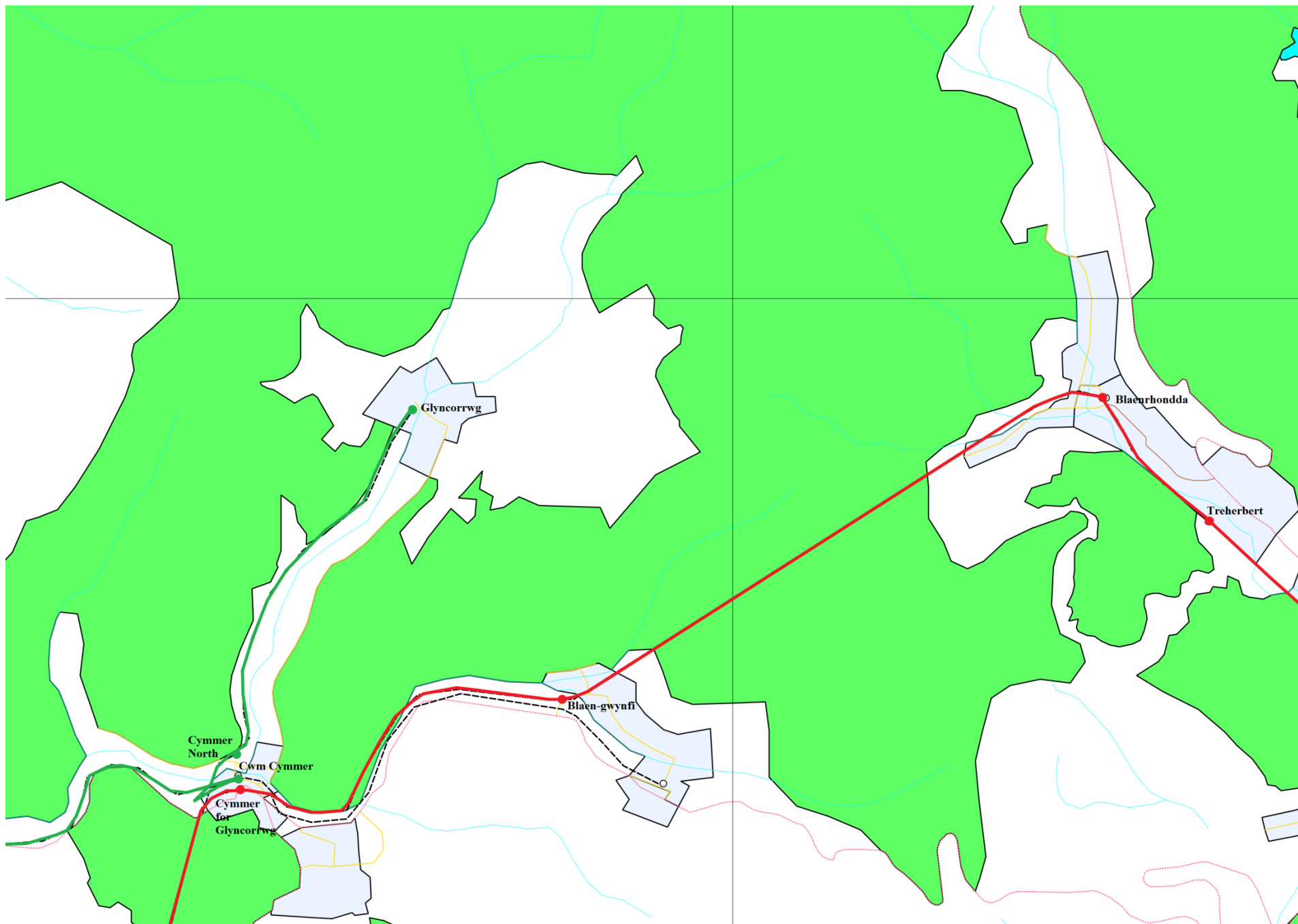


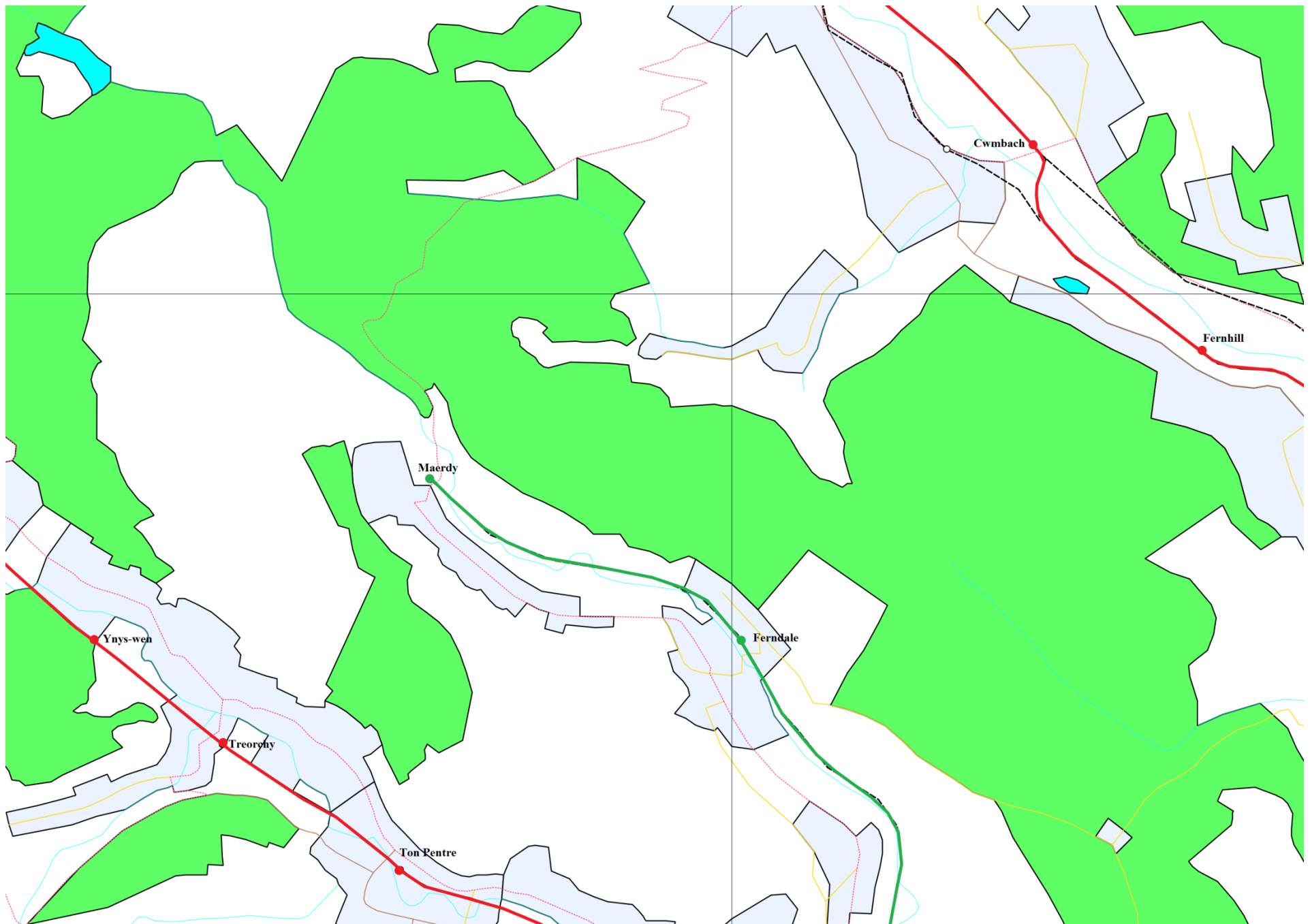


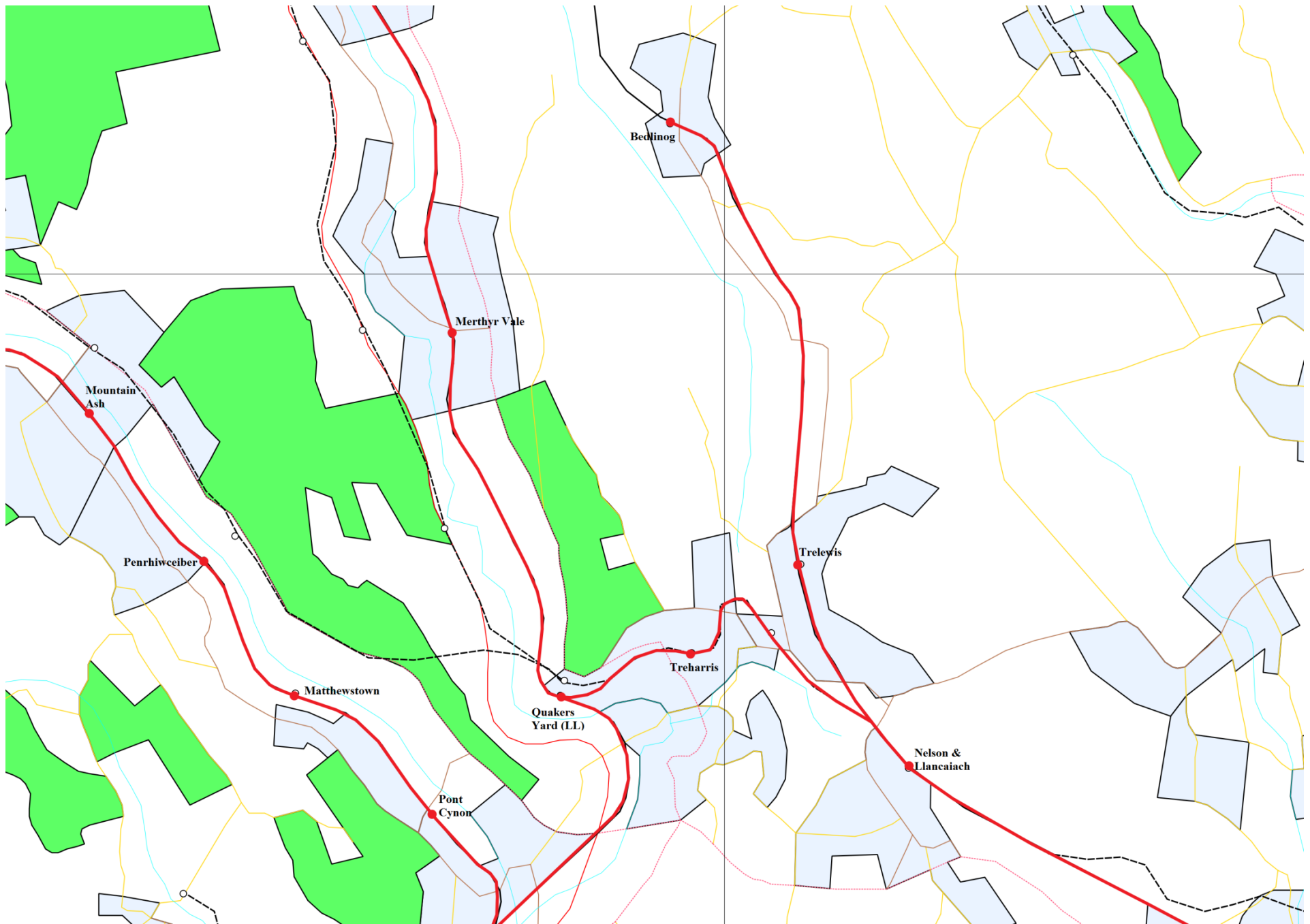


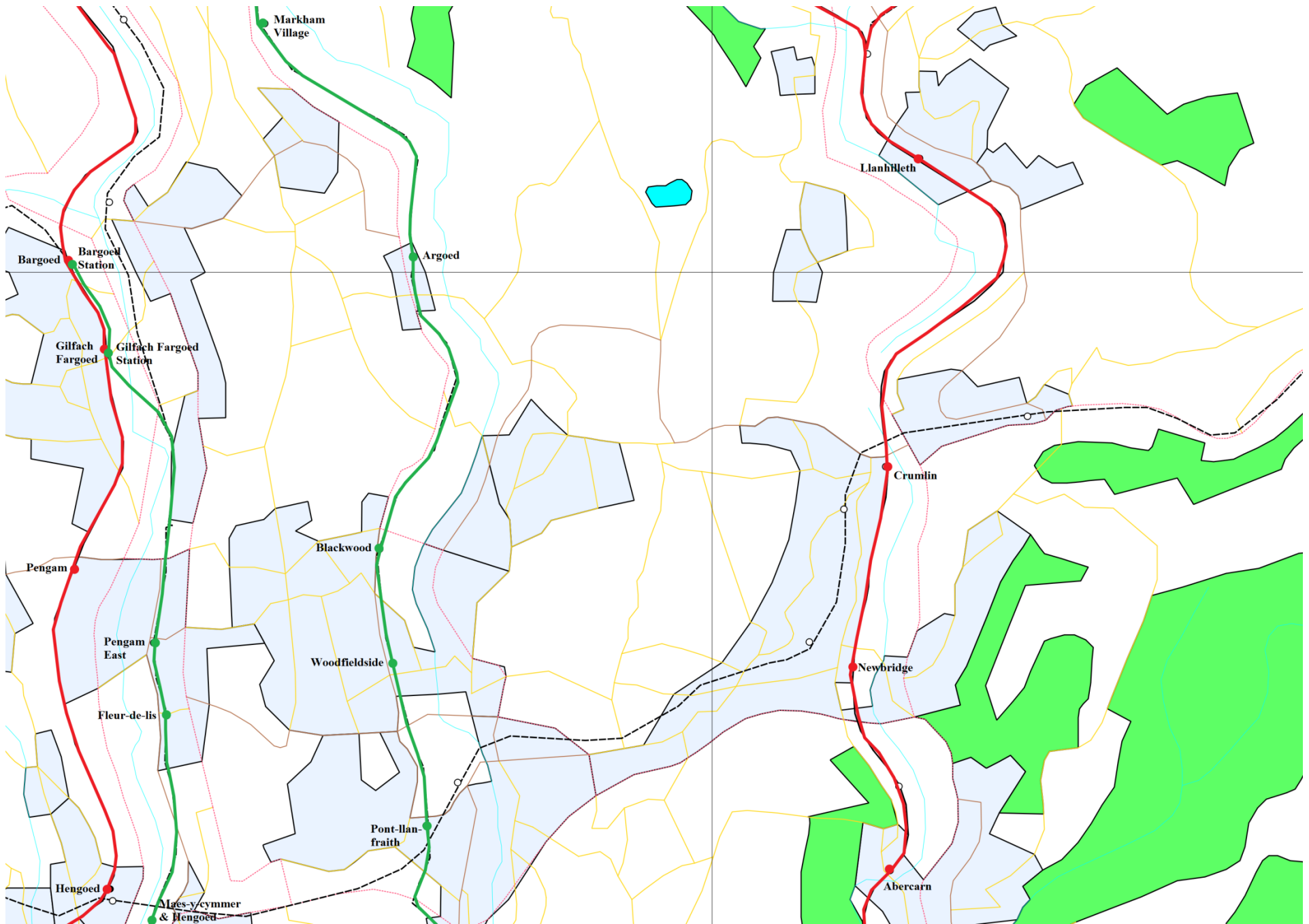


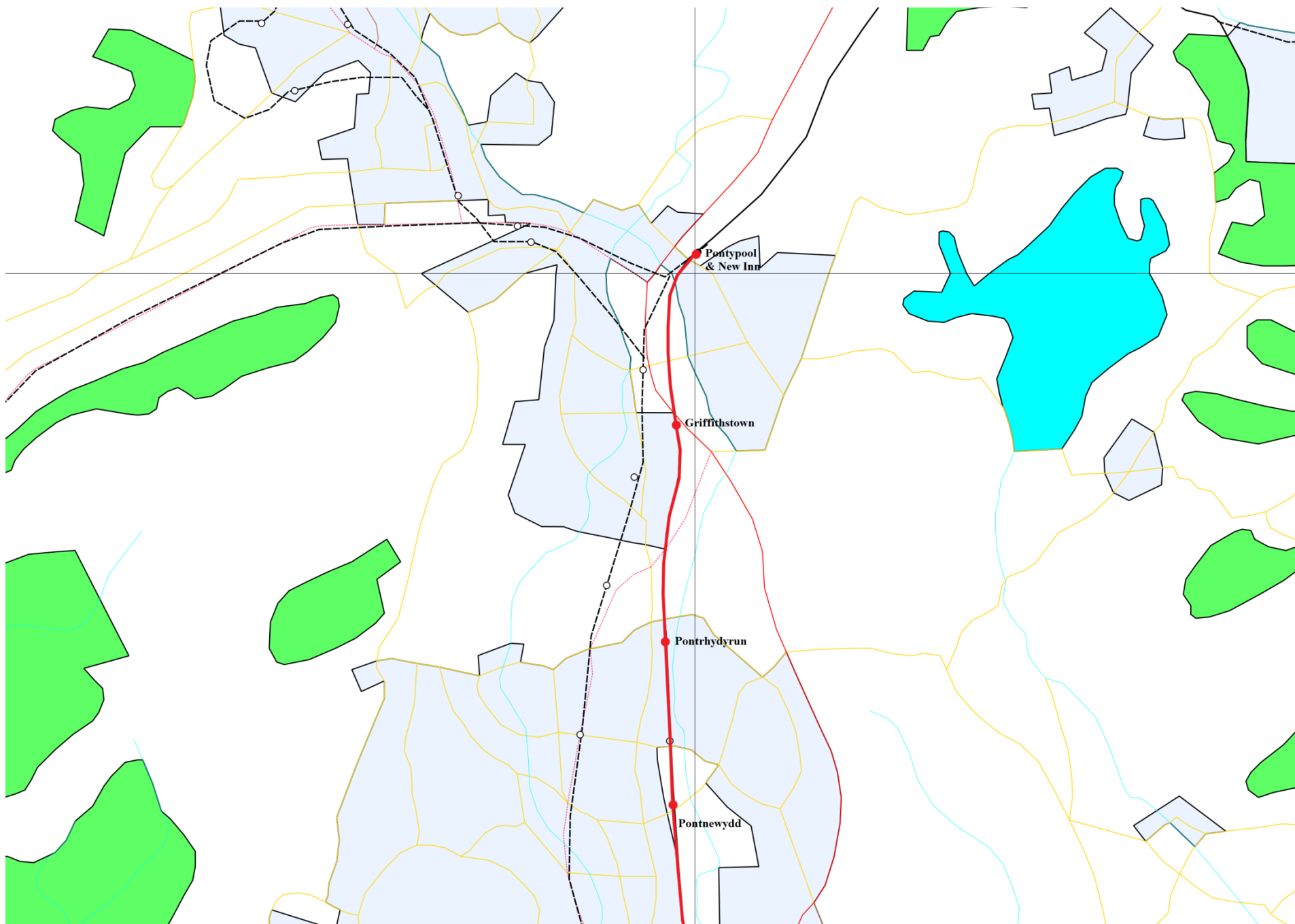


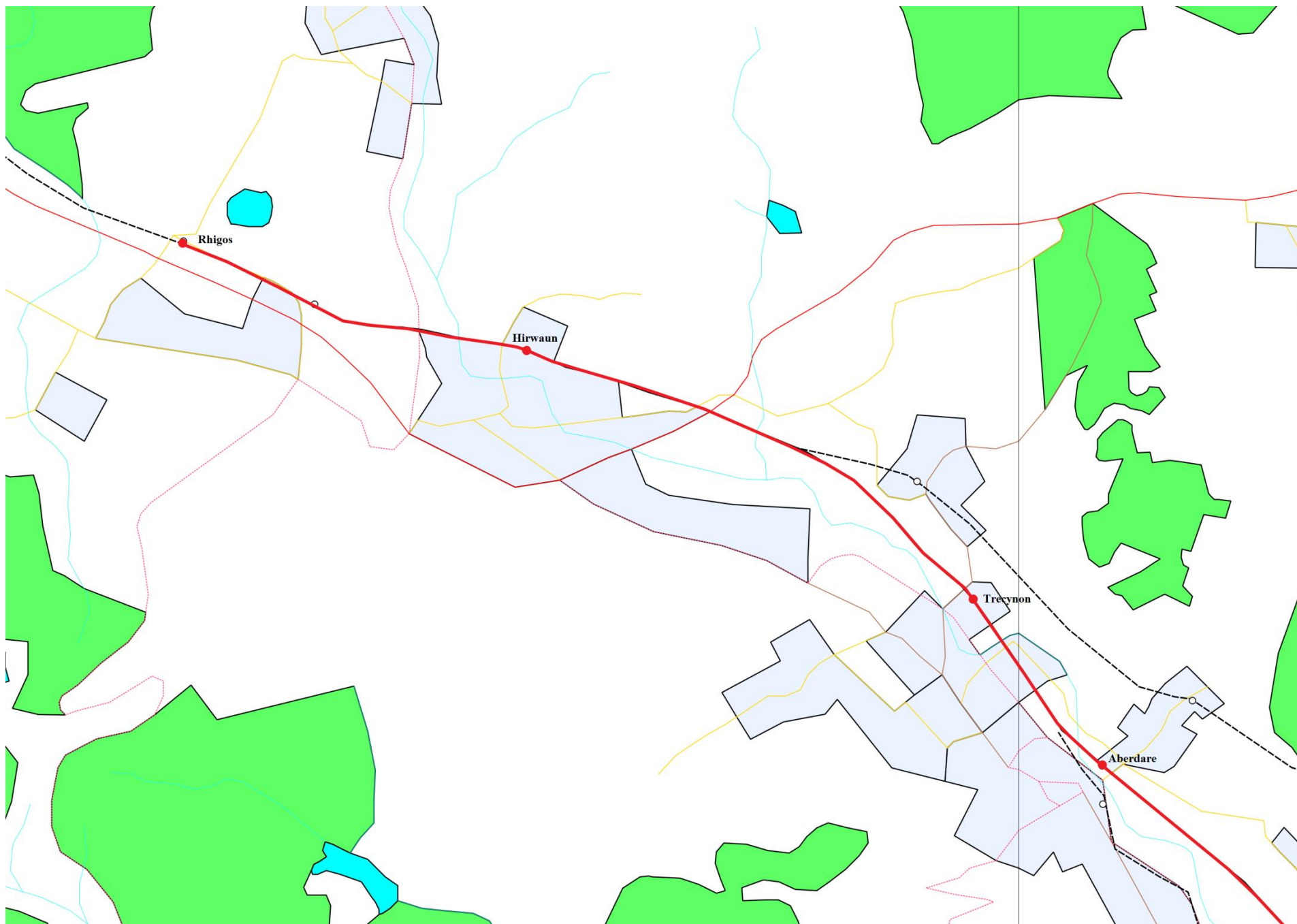


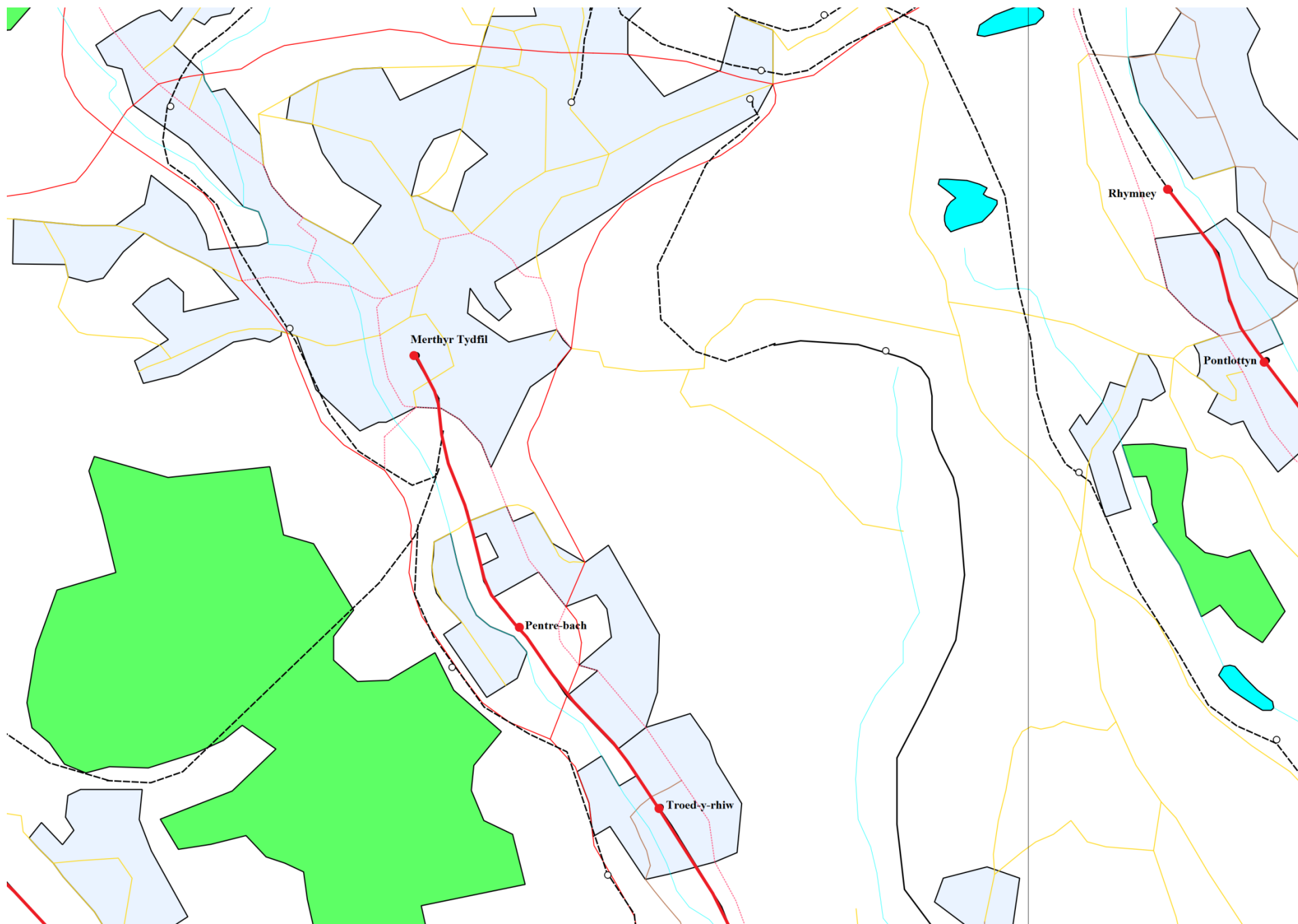


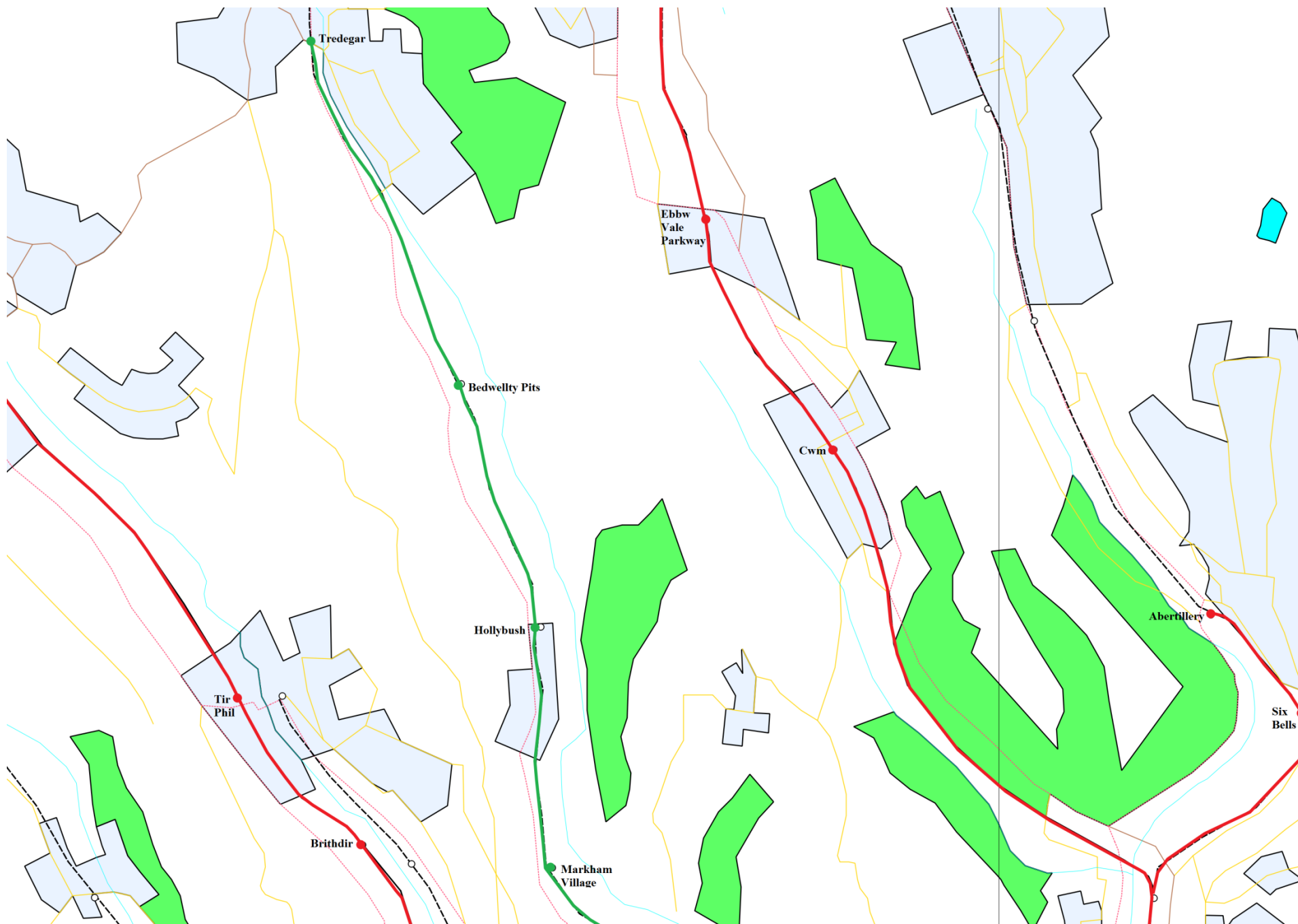


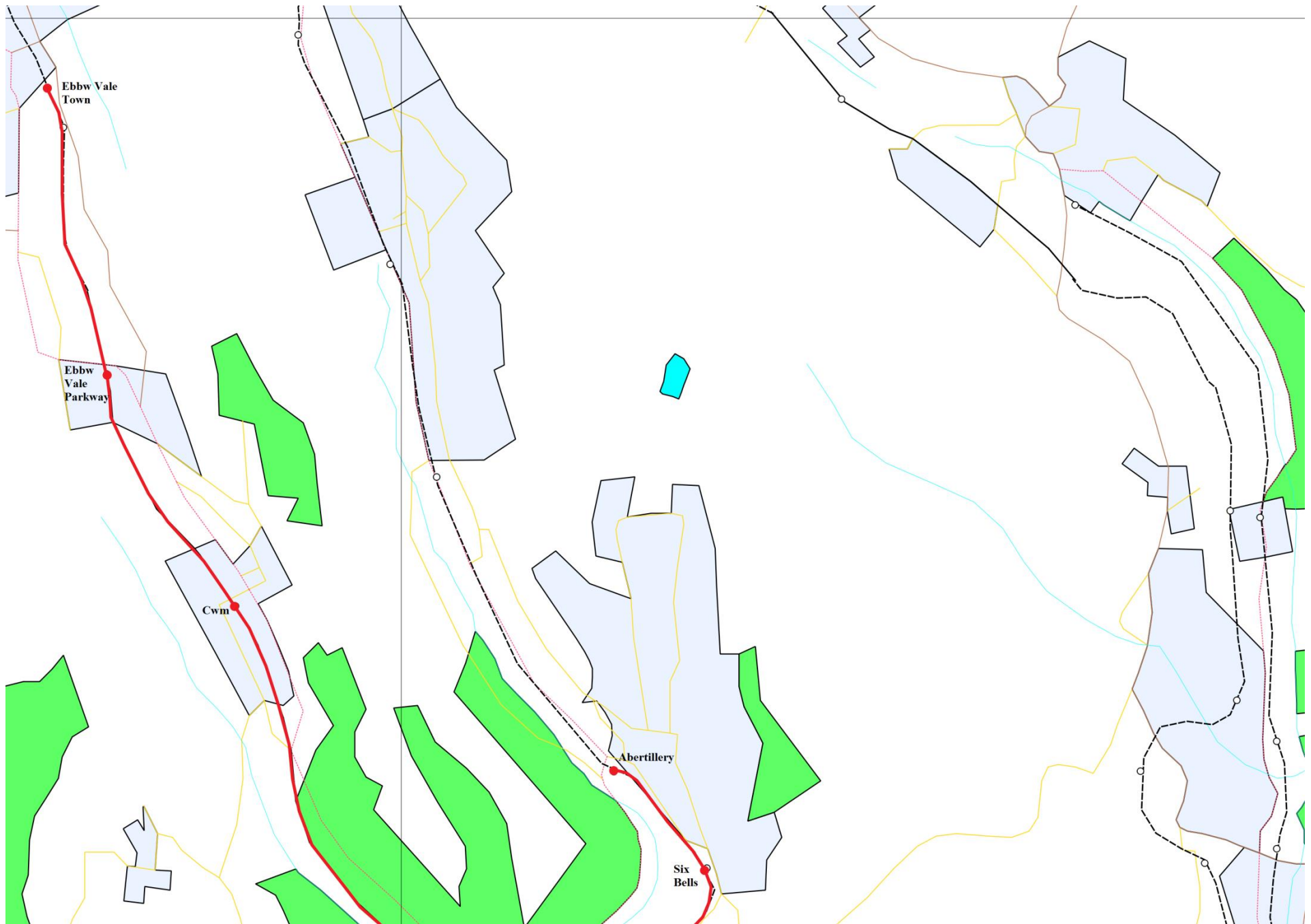








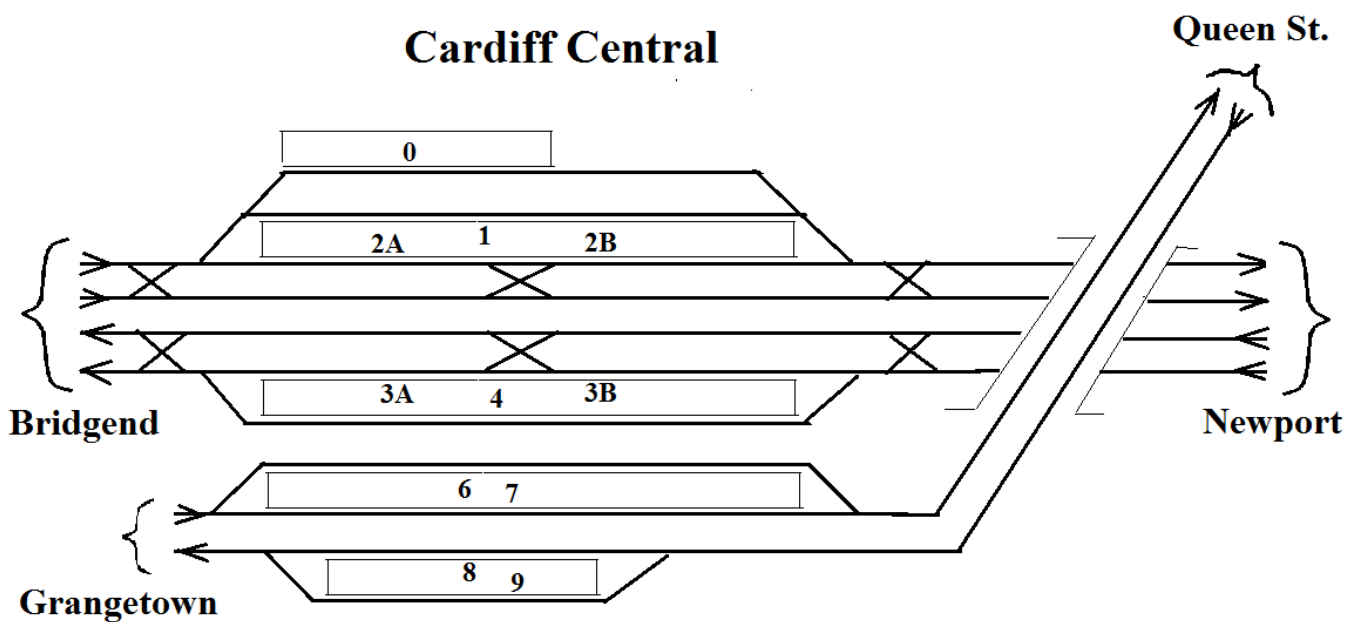




Appendix A – Revised Track Layouts

The most pressing requirement is for the progressive extension of four tracks, (2 down, 2 up) between Cardiff and Court Sart Junction / Briton Ferry Up Flying Loop Junction, where the Swansea avoiding line diverges. At present, there are just three overtaking loops on this section, before Pontyclun, between Pencoed and Bridgend (separate locations, down and up), and at Stormy Down. There is also some 4-tracking around Port Talbot. Initially, passing loops should be provided at each new / reinstated station on this section. (What a pity this was not done for the stations already reopened, Pontyclun et al, so it will now be much more expensive.) When complete, and with the existing 4 tracks between Severn Tunnel Junction and Cardiff (but with either the removal of the surely redundant Bishton flyover, or, if that has to be retained, at least another flyover a few miles east of Cardiff, to reinstate the 2-up, 2-down arrangement on the approach to and through Cardiff station itself,) this will provide adequate capacity for the foreseeable future.

Cardiff Central Station



The usual qualifications apply. The layout plan is a topological diagram, showing connections only. No information should be inferred from it as to shape, size or orientation. Also, only those lines are shown which are relevant to the present argument; there may, generally will, be others, but they are irrelevant in the current context.

The key requirement here, as noted above, is that the main line tracks are paired by direction on the approach to Cardiff from the east, rather than, as at present, alternate directions, with the relief tracks to the south, so that they both have to be crossed, on the flat, to reach the down platforms, 3 & 4. This is a morbid consequence of the Bishton flyover, which, whatever its original virtues were, is now a malignant incubus. By providing scissors crossovers at each end and in the middle, 3 and 4 each become two logical platforms, with trains able to arrive at either half in any order, and to overtake. The long distance up traffic will use platform 1, as at present, but the down traffic platform is 4, rather than 3. Platforms 2A,

2B, 3A and 3B will be used by main line metro services, and also by the longer distance services which start at Cardiff (such as Portsmouth Harbour). Platform 0 is currently used by the Ebbw Vale trains, which will instead use 2 and 3. I suggest that platform 0 becomes the platform for the all-stations service to Bristol Temple Meads.

The Valley Lines services currently use platforms 6 and 7. A new platform 8 is currently being built, at great expense. It is hard to understand exactly what this is supposed to achieve, since it is not enough, by itself, to accommodate the entire southbound Valley Lines service, so this will have to retain platform 7 as well. No relief is provided northbound. I have read it suggested that northbound Valley Lines trains take over platform 4 in addition to 6. As is instantly clear from the diagram, this is an idea of utter, barking lunacy. The only solution is to add another platform face, no. 9, to the new platform, at markedly greater expense than would have been incurred had that been done at the beginning, as it clearly should have been.

Bridgend Station

The current Bridgend station, although unquestionably a nice station, is barely adequate to handle the current service, and would be completely incapable of handling the traffic loading of the plans expounded here.

The main requirement is to get the metro trains approaching from the Vale of Glamorgan Line to the north side of the alignment, to proceed on to Maesteg and points north. Actually, this wouldn't be difficult, but it wouldn't be especially cheap, either. From satellite maps, as the Vale line approaches the station, on the south west side of the main line, there is ample space available for it to dive under the main line, in the immediate vicinity of the Brackla St. overbridge, emerging on the north east side of the main line and passing alongside the station to its own platforms, slightly to the north of the existing ones. It wouldn't need platforms as long as those on the main line, and could take over (as a through platform) the existing bay platform which was originally used for the Maesteg services, but is currently unused, and add another of similar length on the outside. The bay platform at the south end, currently used by the Vale Line trains (and seemingly accessible only from that line) would be connected to the down main line and used by the Ebbw Vale service which terminates at Bridgend. A new crossover would be needed for these to gain the up main line, for the return journey.

This is certainly not the best station I could design, given a green field site, but it's the best I can do for the current Bridgend, and would, I believe, satisfy the requirements very adequately.

Appendix B – The Cymmer Viaduct

The double reversal at Cwm Cymmer requires a little elucidation.



The Cymmer Viaduct is an amazing survivor, an iron-trestle viaduct on stone piers. There used to be a lot of these, but very few such there are (major) viaducts left – they were all cut up for scrap when the lines closed. It served the mineral line to Glyncorrwg, and very probably never had a regular passenger service. The R&SB line from Port Talbot via Dyffryn Rhondda led into the Cwm Cymmer station, immediately adjacent to the Cymmer for Glyncorrwg station, of the GW route, from Maesteg. The viaduct line diverges from the GW route. To access the viaduct

line thus needs reversal at Cym Cymmer and backing up onto the GW (or, better, into a reversal siding). A second reversal then allows the viaduct to be crossed, and Glyncorrwg reached.

I regard the present proposals as a splendid opportunity to restore and secure a priceless piece of South Wales's industrial heritage, by giving it a new and lasting function. That it also serves and helps make readily accessible a currently inaccessible and severely deprived area of South Wales makes it **even better**.

Appendix C – Adding New Components to a Light-Rail System

The earlier sections maintain the fiction of the light-rail components being something separate from the ‘heavy-rail’ ones. Thus, for example, a light rail service stopping at a heavy rail station has a stop called ‘X Station’, as if it were a tram stop in the street outside the station. Given that the entire system (apart from the South Wales Main Line, the Eastern Valleys group and the Marches Line) is light rail, this pretence can be discarded. Everything uses the same infrastructure, the same tracks and the same platforms. The following consequences are immediate:

It is clearly the case that the Blaengarw and Nant-y-moel branches would better served from Bridgend than from Llanharan. They should start from some location on the Vale line, immediately south of Bridgend, Ewenny, possibly, to avoid cluttering up Bridgend station. The only remaining service from Llanharan, to Kenfig Hill via Tondu, would merge with the Porthcawl Loop services, based on Pyle. (The service from Port Talbot to Nantgarw via Maesteg would continue, as would the other services based on Port Talbot.)

The former Cardiff Railway originally extended beyond Coryton to Tongwynlais. The initial section of the alignment is still (according to satellite maps) available, to just beyond the Coryton Gyratory system, linking the M4 and A470, but beyond that has disappeared beneath the new A470. However, a short diversion, crossing over the Taff, and joining the Taff Vale route, would bring it to Taff’s Well. (The other end of that service, at Radyr, is already on this line.) Hence the light rail services based on Caerphilly could be linked to the Cardiff ones, and the service from Bargoed via Bedwas extended to loop through Cardiff, clockwise or counterclockwise through Queen St. and Central. The Senghenydd service could likewise pass through Cardiff, direct from Caerphilly via Llanishen, and joining up with the Bargoed service at Roath Park / Pen-y-lan. The service from Queen St. to Cardiff Bay has previously been thought of as a shuttle; there is no reason this has to be so (the service from Senghenydd just mentioned could readily extend to Penarth via Cardiff Bay and the Millennium Centre / Welsh Assembly).

A branch from the route from Cardiff to Llanishen and Maerdy, diverging just after Capel Llanilltern and extending via Croes Faen and Miskin to Pontyclun station, would link the Gilfach Goch and Tonypany Upper services into the Cardiff ones.

These are just a few off-the-cuff ideas which present themselves immediately, once the idea of an overall light-rail system is accepted. The South Wales Metro could easily become the reference light-rail system for the entire UK. The scope is enormous, the only limits are in our imagination. (I suppose in theory the situation could be reached where we had done so much that it really wasn’t worth doing more, but that is hardly likely in any of **our** lifetimes.)

In a future version I may well consider a light rail system for the Heads of the Valleys.