

SOUTH AUSTRALIA'S ***MIXED GAUGE MUDDLE***



Triple Gauge (2 configurations) - Gladstone

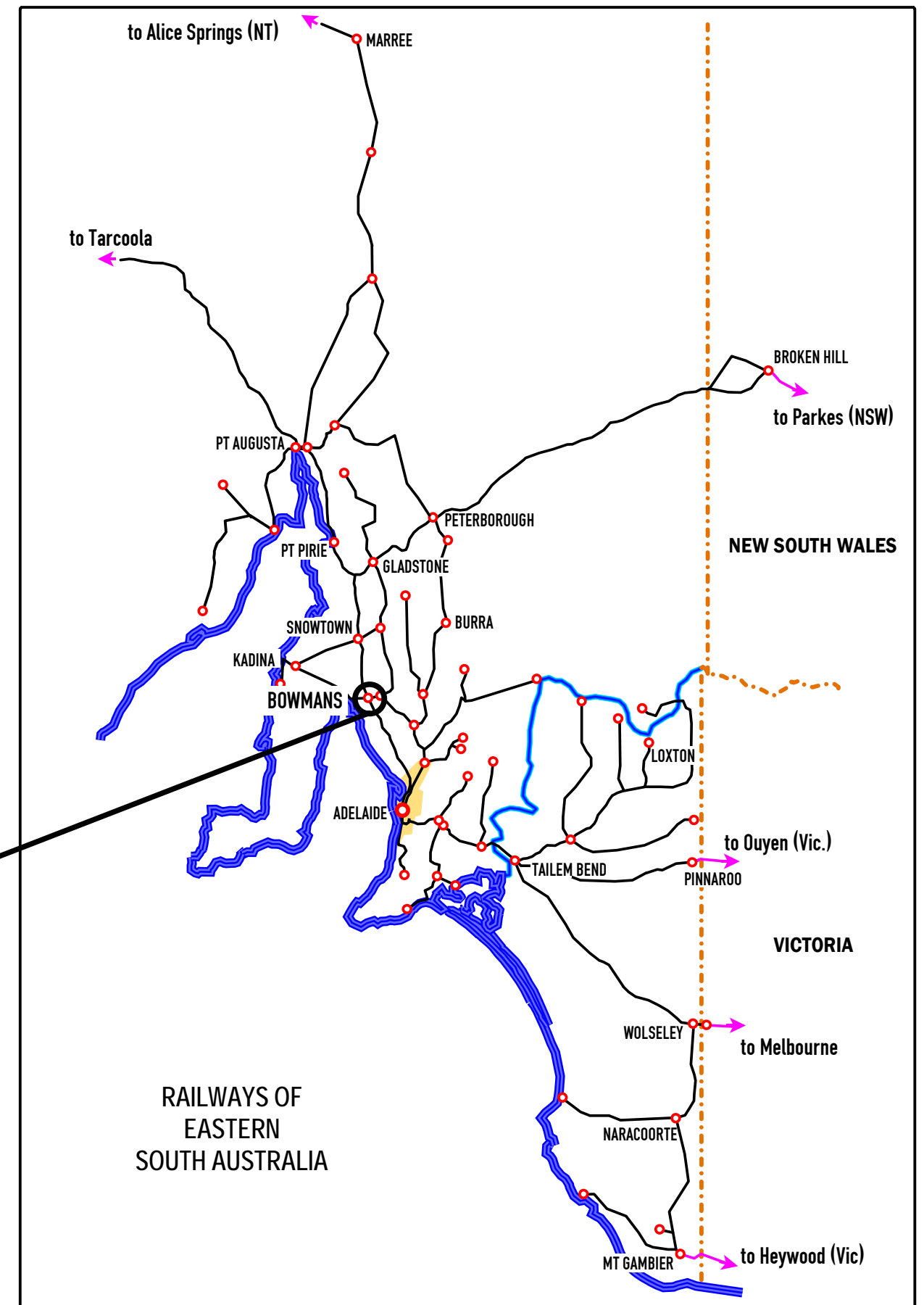
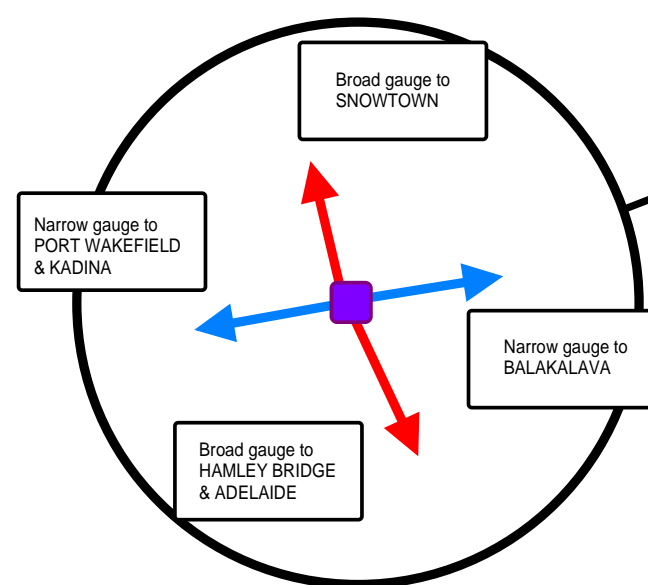
SECTION - A MULTI GAUGE STATIONS in SA COUNTRY AREAS

Country locations	Era		Drawing
Bowmans	1923	- 1927	1001
Brachina	1956	- 1957	1002
Gladstone (1)	1970	- 1985	1003
Gladstone (2)	1927	- 1970	1004
Hamley Bridge	1880	- 1927	1005
Marree	1957	- 1980	1006
Mount Gambier	1917	- 1954	1007
Naracoorte	1951	- 1957	1008
Peterborough	1970	- 1989	1009/10
Pinnaroo AWB	2009	- 2011	1011
Port Pirie environment (1)	1937	- 1970	1012/13
Port Pirie environment (2)	1970	- 1982	1014-16
Snowtown (1)	1923	- 1927	1017
Tailem Bend	1996	- 1998	1018
Terowie	1881	- 1970	1019/20
Whyalla Steelworks	2013	>	1021

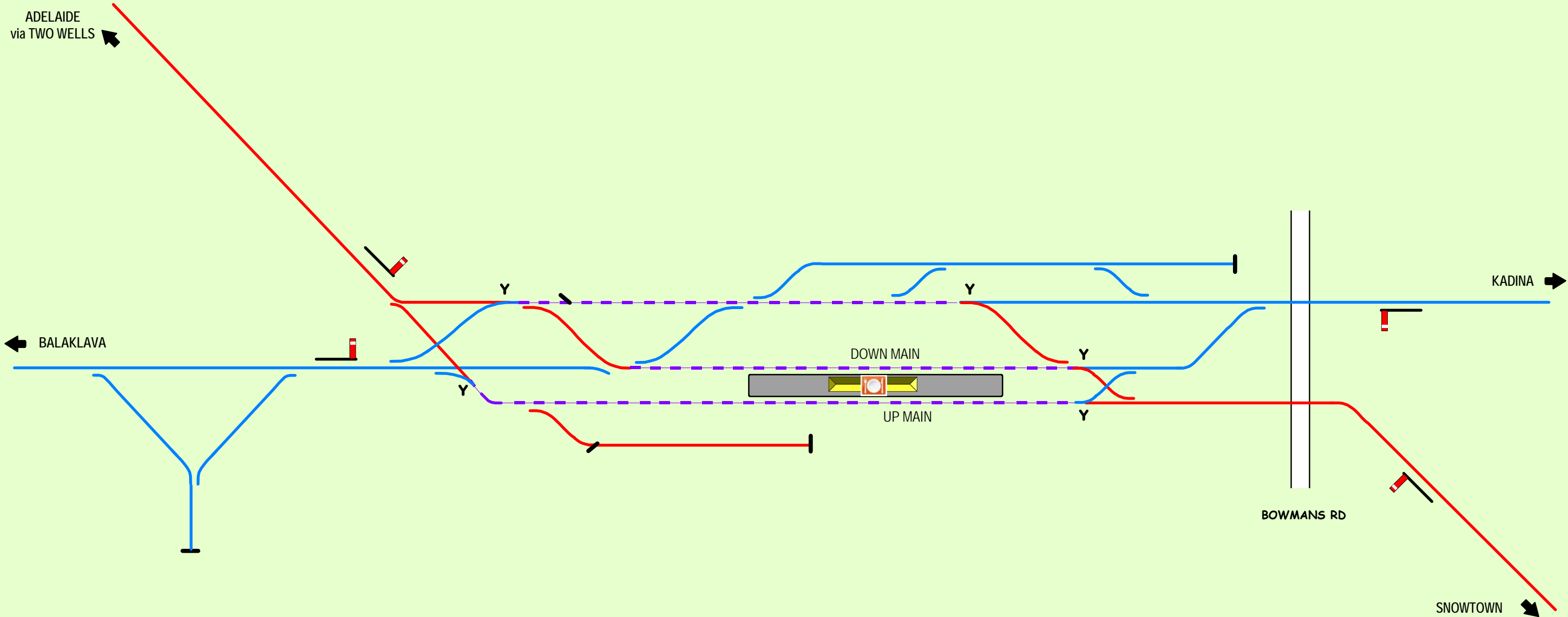
For other Country locations refer to
Section B - Multi Gauge Lines in Country SA

Historic Notes

Bowmans started its relatively short period as a dual gauge station when two lines of different gauges crossed geographically. The Balaklava to Kadina line of the Western System was pre-existing as a narrow gauge line, when the broad gauge line from Long Plains started to snake forward towards Port Pirie. The interaction of the two lines did not create a 'transfer' point for passengers or commodities, and the status ended four years later when the whole of the Western System was converted to broad gauge. Given that this system change was predicted, all of the dual gauge lines at Bowmans were laid as 4 rail configuration with both narrow gauge rails between the broad gauge to facilitate the eventual change to broad gauge only.



BOWMANS



Y -- Fixed point divergence of two gauges

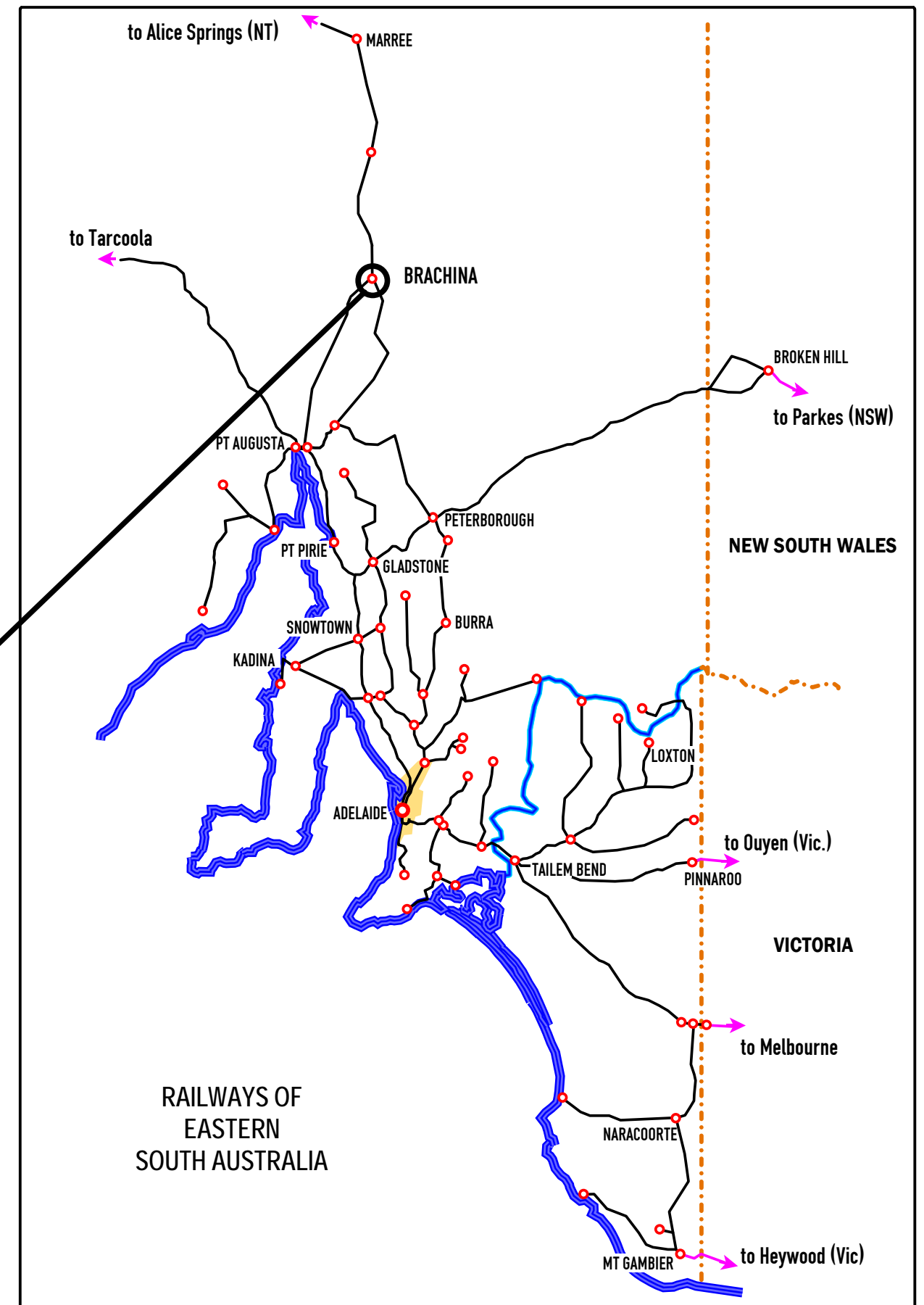
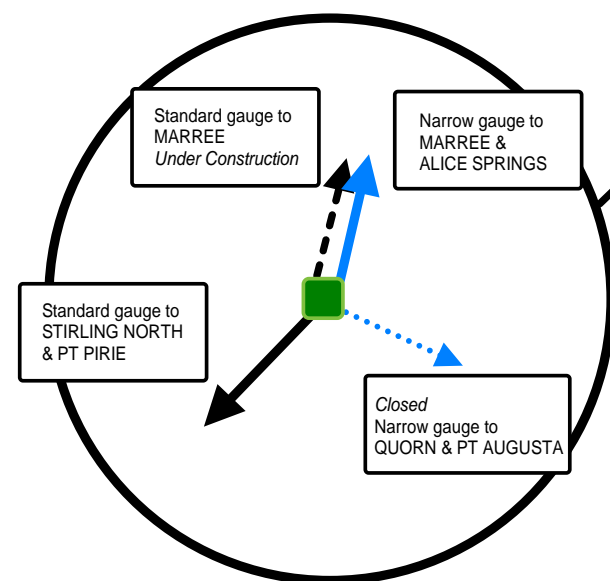
Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

BOWMANS
1923 - 1927
Dual Gauge Era (b.g./ n.g.)

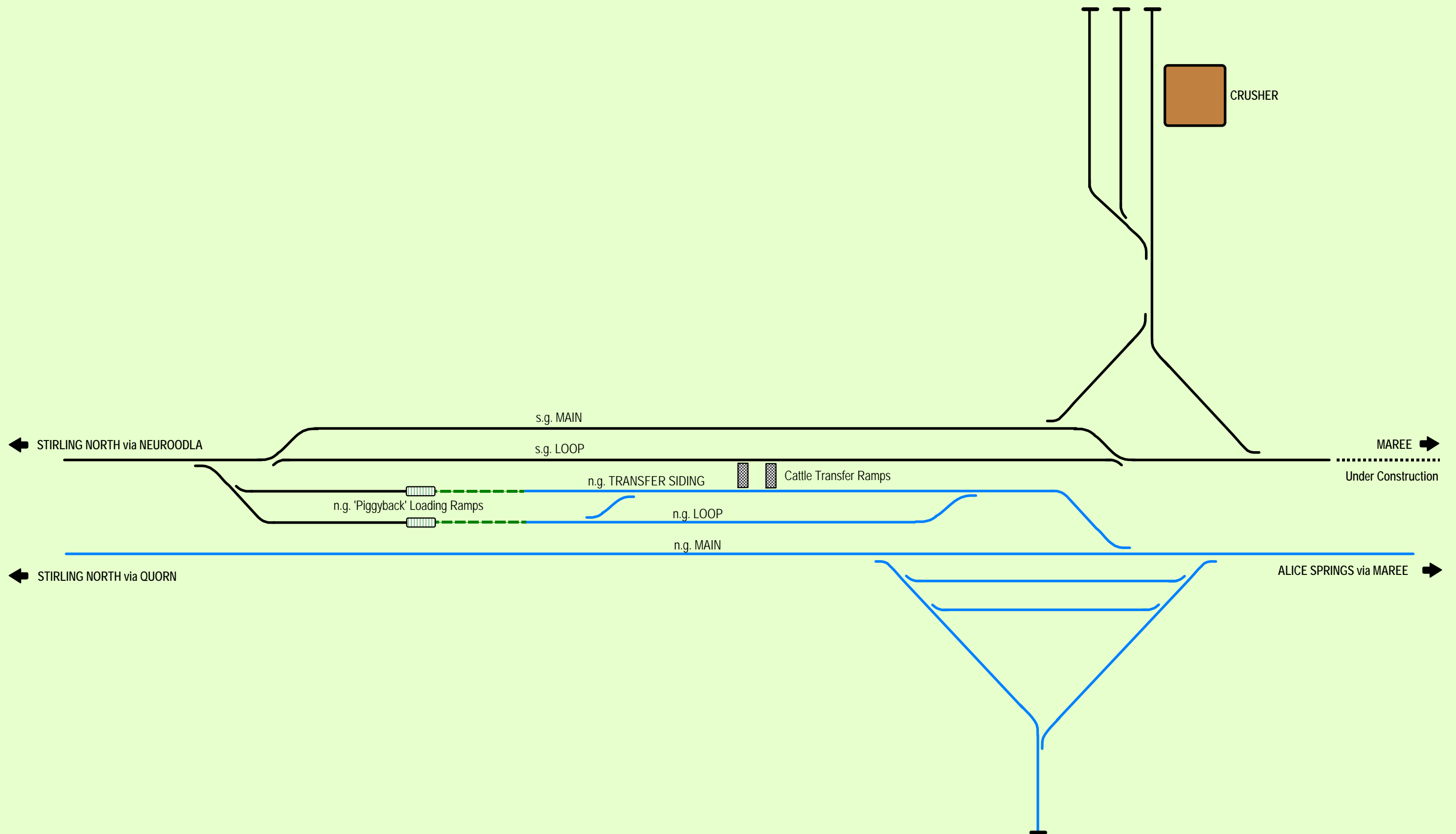
Historic Notes

By the criteria set - 2 or more years and not simply during construction - Brachina doesn't really qualify. However it is a special case worth reporting.

From the 1880s, Brachina was a small siding on the Quorn - Oodnadatta (and ultimately Alice Springs) narrow gauge line. But in 1955 the new standard gauge line from Stirling North traversing the plains to the west of the Flinders Ranges arrived, avoiding the difficult Pichi Richi Pass and Quorn, and temporarily Brachina became a trans-shipping point. This in itself was hardly special, but full narrow gauge coal and stock trains were not unloaded, but simply run up onto standard gauge flat cars fitted with narrow gauge track and carried 'piggy-back' to the south. This rather novel process continued until the standard gauge reached its next staging point to the north in late 1956.



BRACHINA



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

* Whilst Brachina does not meet the "2 year" criteria
for inclusion in this series, it's unique facility for
piggyback loading is worthy of note.

BRACHINA
1956 - 1957*
Dual Gauge Era (s.g./ n.g.)

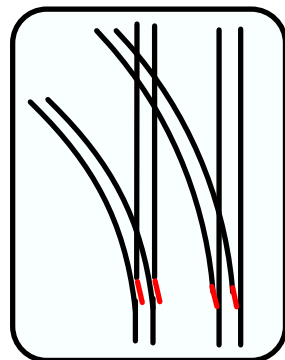
INTRICATE TRACKWORK

TRIPLE GAUGE TURNOUTS & TRANSITIONS

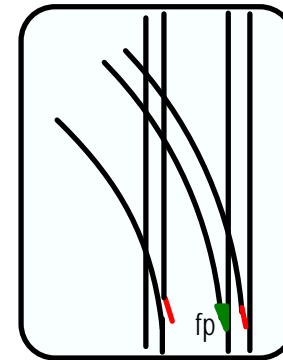
For illustration purposes some photographs are from other illustrations.



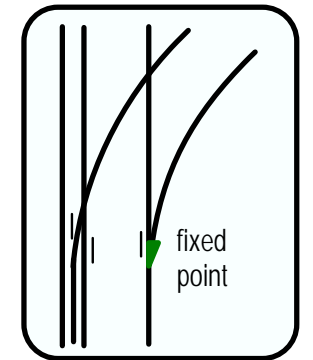
Turnout: (3 gauge) - Main and Branch. 4 moving blades



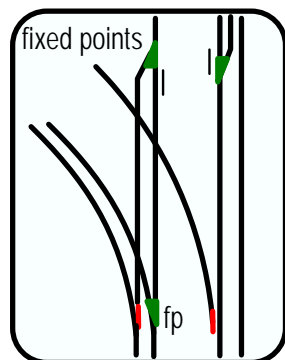
Turnout: (3 gauge) *to* (b.g+n.g) Branch. 2moving blades



Divergence: (3 gauge) *to* (b.g+n.g) Main & s.g. Branch. No blades



Turnout: (3 gauge) Main *to* (s.g+n.g) Branch. 2 moving blades and transition

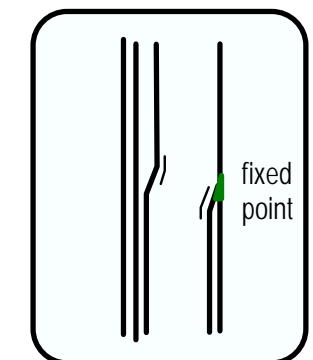


WOULD YOU BELIEVE?

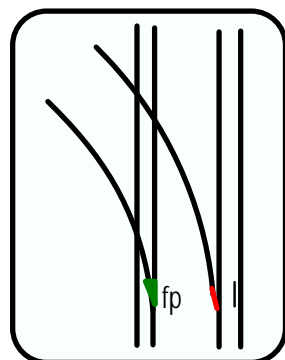
In the three gauge Gladstone Yard (1970>1985) there were no less than 11 different gauge/gauge combinations?



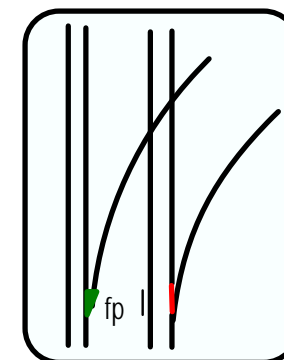
Transition: (3 gauge - centreline) *for end wagon sheep transfer to* (3 gauge common rail) *for platform alignment (not visible)*



Turnout: (3 gauge) Main *to* n.g Branch. 1 moving blade



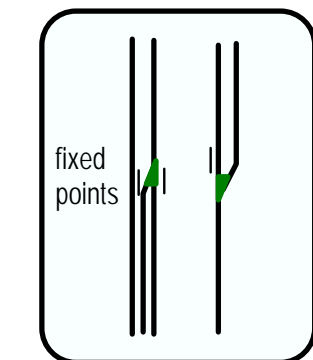
Turnout: (3 gauge) *to* b.g Branch



1moving blade



Transition: (3 gauge - common rail) *to* (3 gauge 'gauntlet')

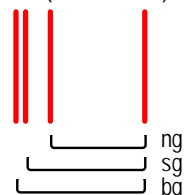


Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

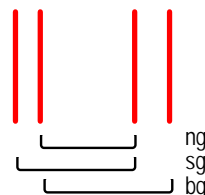
TRIPLE GAUGE TRACK CONFIGURATIONS

Narrow gauge: 1067mm
Standard gauge: 1435mm
Broad gauge: 1600mm

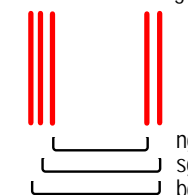
Basic (Common rail)



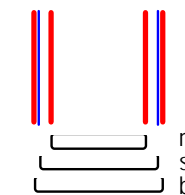
Permits turnouts



Centreline loading



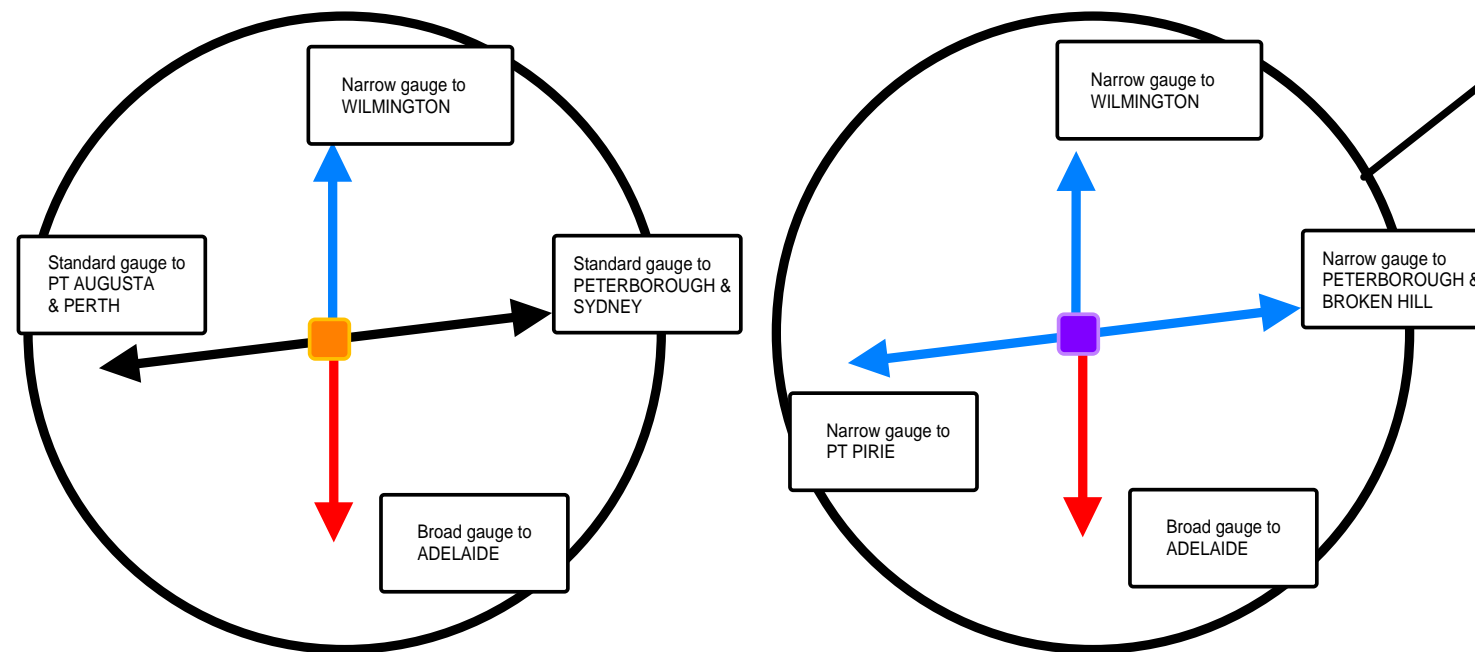
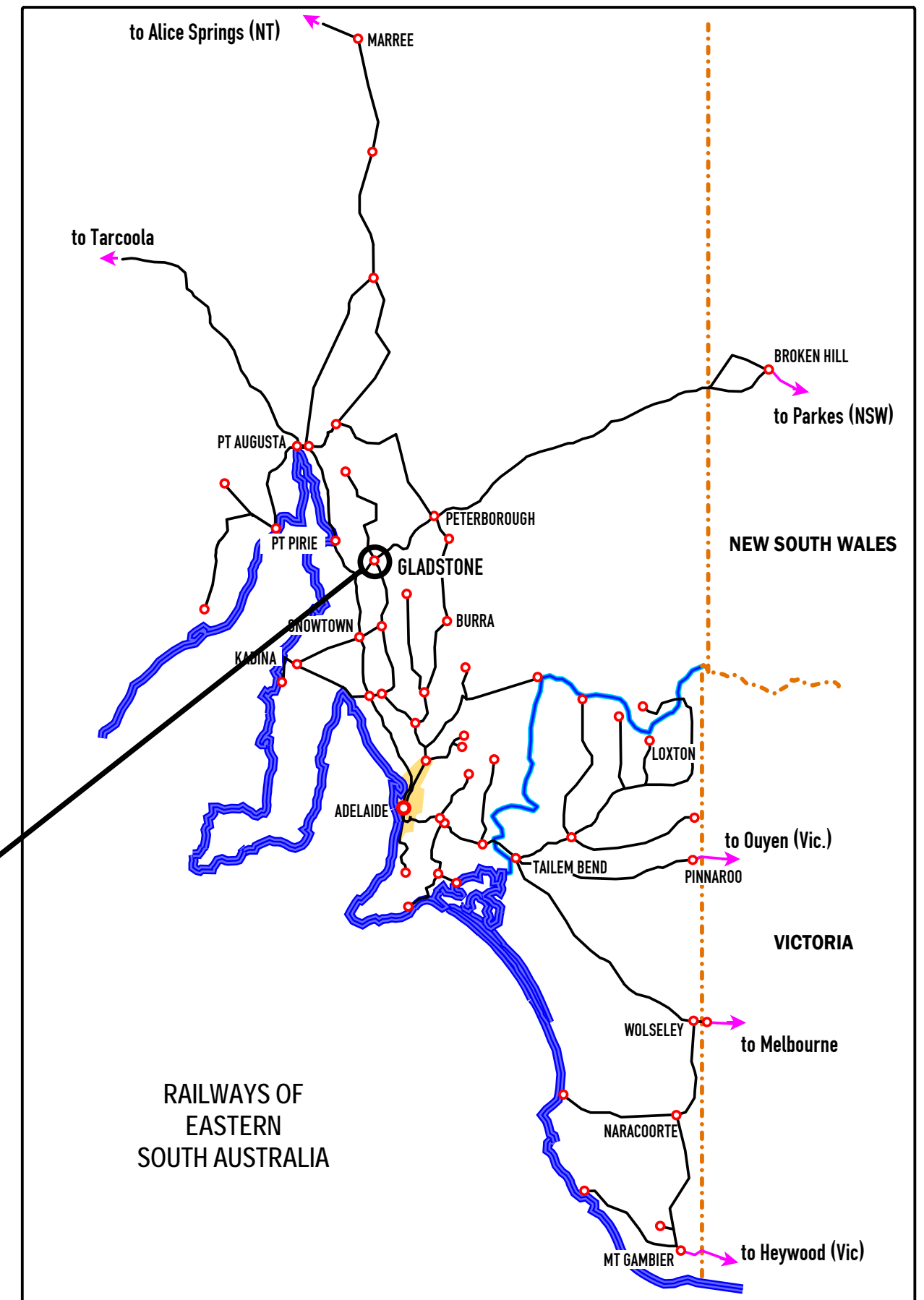
Turntable access



Note: In this configuration the standard gauge rails need to be narrowed to permit broad gauge flanges to fit.

Historic Notes

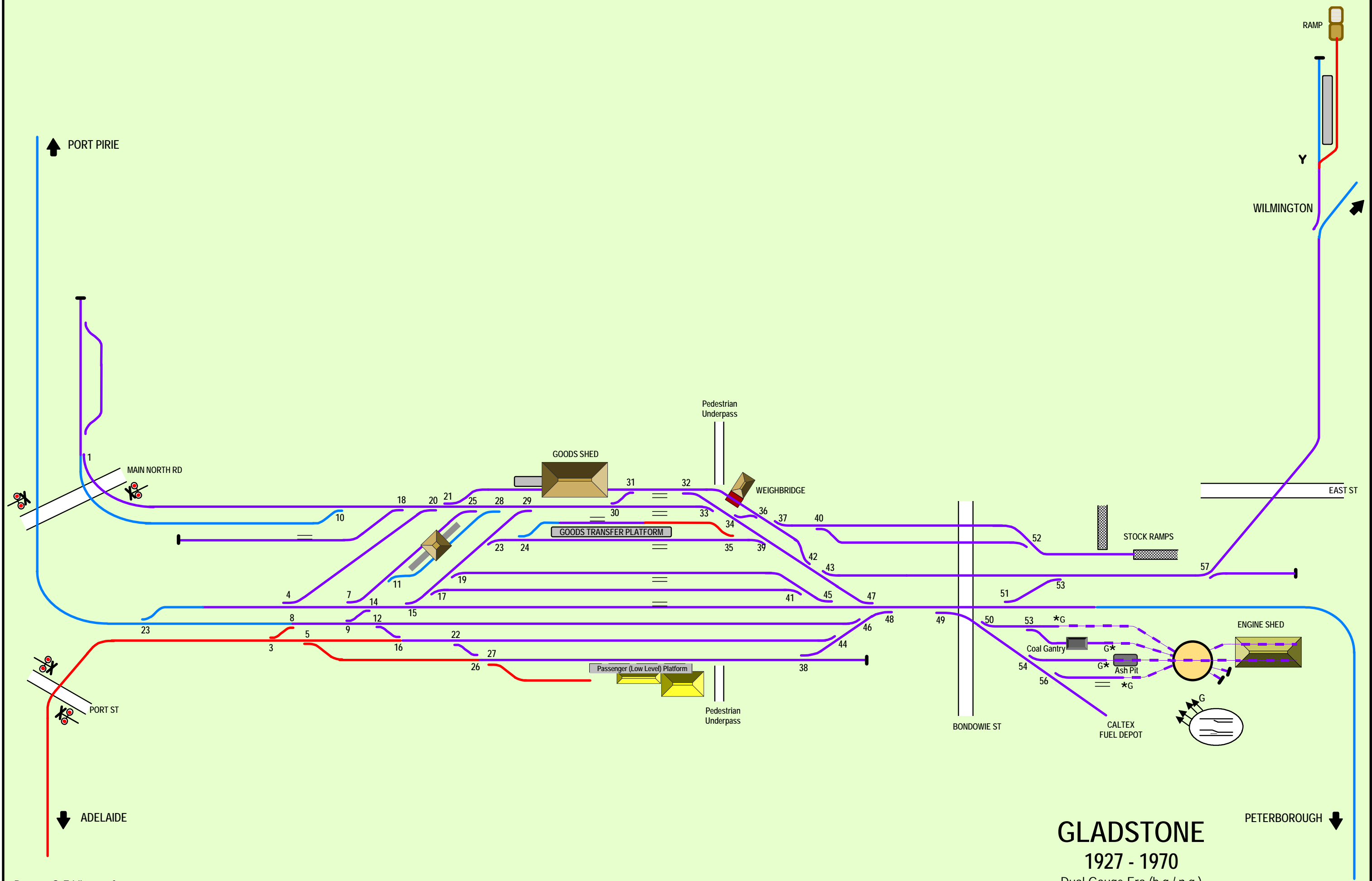
The first railway reached Gladstone in 1876 as a 1067mm gauge line coming inland from Pt Pirie. This line then extended on through Peterborough (then Petersburg) reaching Broken Hill in 1888. As a separate development the narrow gauge "Western System" was extended north from Balaklava eventually connecting at Gladstone in 1894. The Wilmington branch started with a line to Laura in 1884 and was completed in 1915. Gladstone thus prospered as a single gauge junction until 1927. In this year the "Western System" was converted to broad (1600mm) gauge, eliminating the break of gauge station at Hamley Bridge, but creating a new one at Gladstone. This commenced a period of 43 years as a two gauge junction, transshipping grain, livestock, passengers and general goods. Passenger services operated on all radiating lines. In 1970 the Broken Hill - Coonamia line was converted to standard (1435mm) gauge as part of the upgrading of the Sydney - Perth route to a single gauge, creating the third era for Gladstone as a triple gauge station - reputedly one of only two in the world along with Peterborough. Whilst Gladstone was much smaller than its neighbour, it was vastly more complex since with limited space it was built with all the yards superimposed on one another. This provided an amazing array of multigauge trackwork with no less than 11 different gauge combinations in the one station complex. Built initially to transfer all products including livestock it gradually reverted to grain only. Passenger service was only provided on the broad gauge to Adelaide. By 1993 the Wilmington branch had been closed and the broad gauge link to the south was also removed. The station now remains as a passing loop on the main east-west line but with a regional grain loading centre.



1970 -- 1993

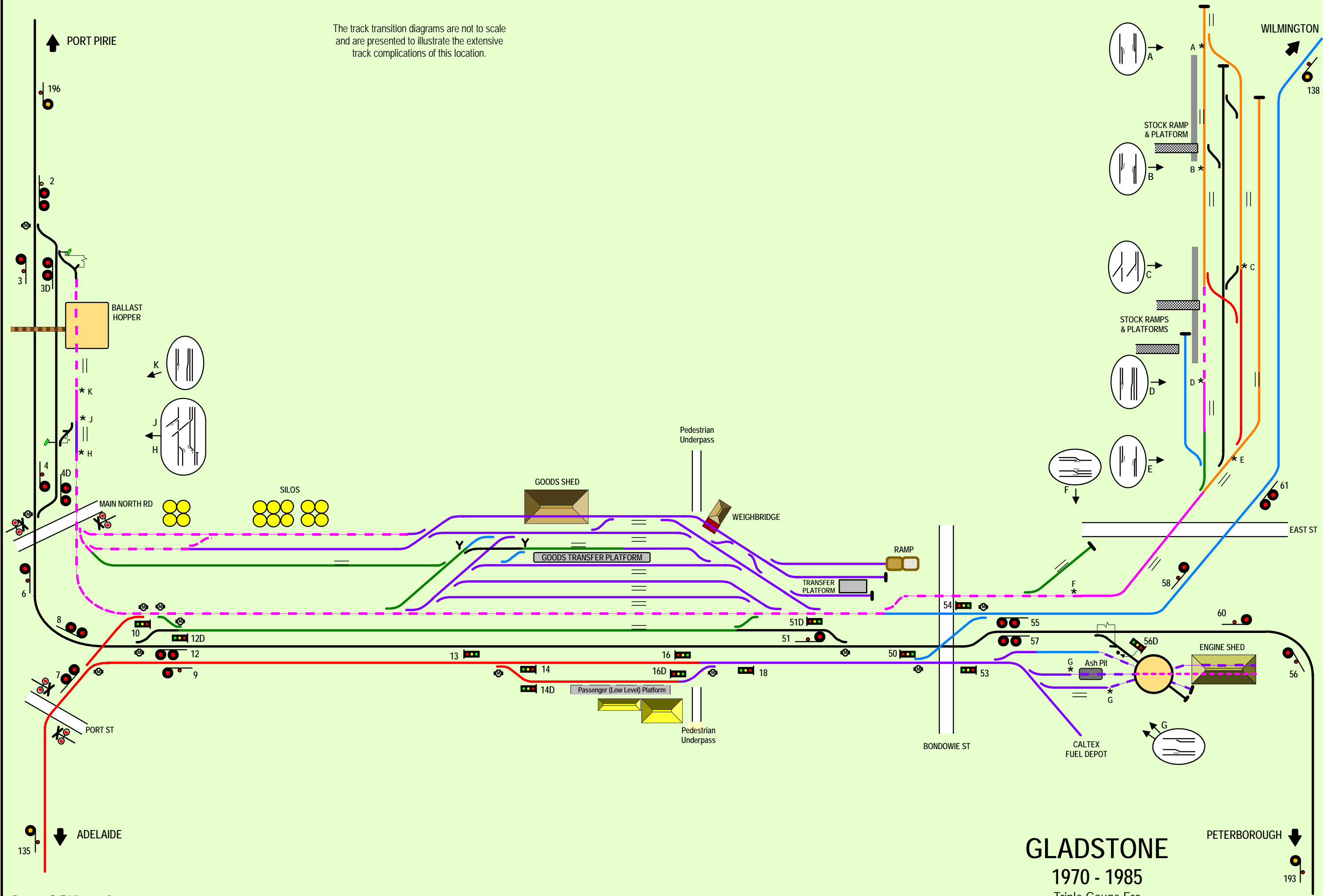
1927 -- 1970

GLADSTONE



Drawn: G F Vincent for
National Railway Museum, Port Adelaide

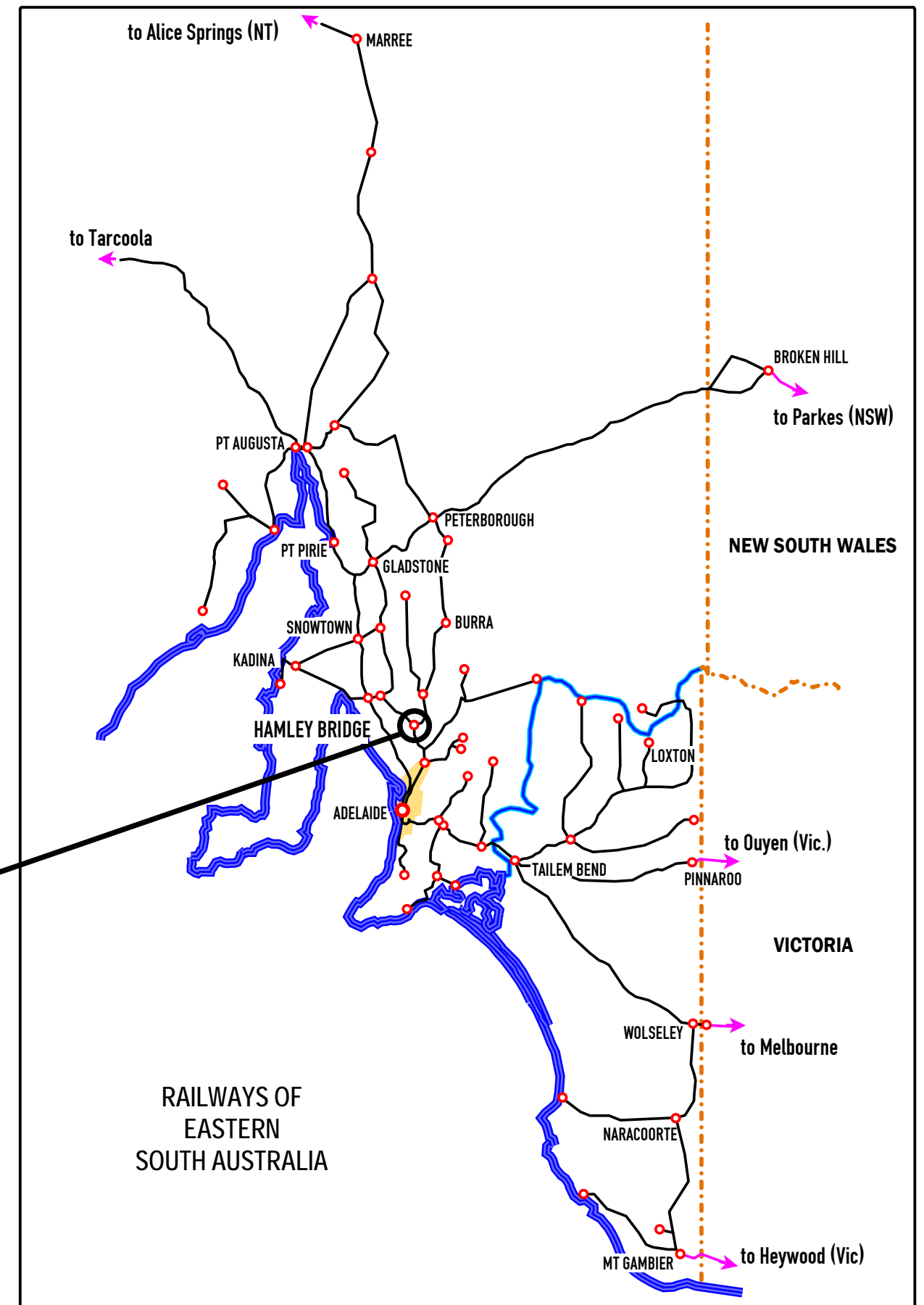
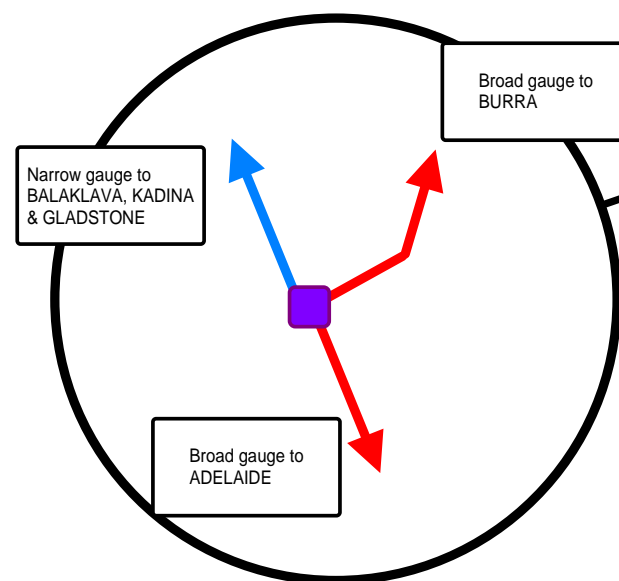
The track transition diagrams are not to scale
and are presented to illustrate the extensive
track complications of this location.



Historic Notes

There were only two other steam powered main line railways in the state of South Australia when the broad gauge (1600mm) Adelaide-Burra line first reached Hamley Bridge. Construction of the line was dominated by the need to span the River Light just south of the town. The iron work for this major crossing was manufactured in England and shipped in time for erection and opening of the line in July 1869. In the same year a narrow gauge (1067mm) "tramway" was built for horsedrawn traffic between Port Wakefield and Hoyleton with no expectation of connection to other lines. However by 1877 this "Western System" had been extended to Kadina with plans to also extend northwards to Gladstone. Connection between the systems was made with a line from Hamley Bridge to Balaklava and the two gauge junction was formed in 1879, making it the first dual gauge main line station in Australia. The Hamley Bridge junction served as a change-of-gauge station for 58 years until the Western System was converted to Broad Gauge in 1927.

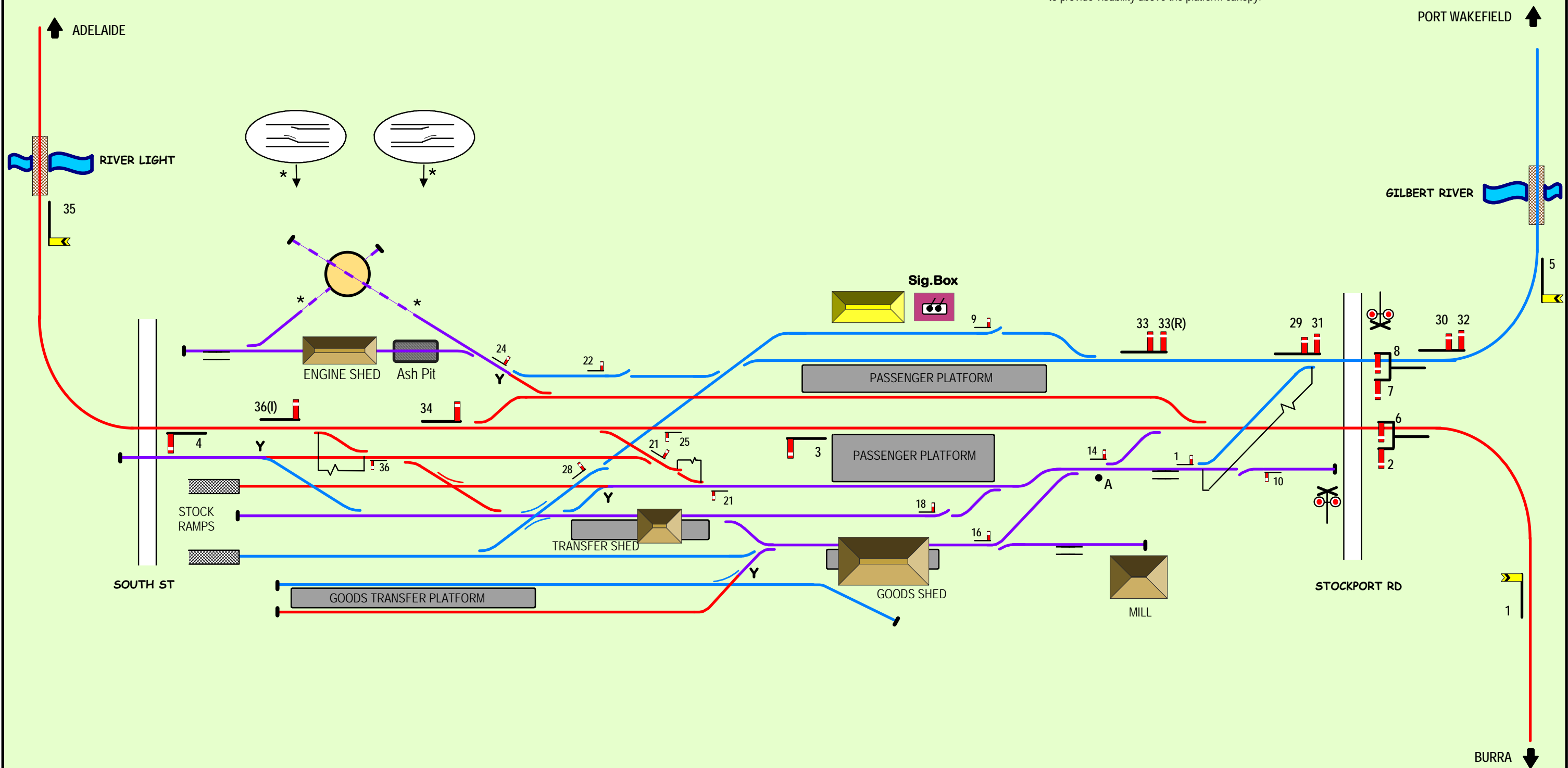
Since 1980 the mid north railway network has gradually been abandoned as farm traffic became uneconomic for rail transport. Hamley Bridge broad gauge track remains in place, but with no operating trains, looks derelict and desolate.



HAMLEY BRIDGE

The semaphore style ground signals were essentially just Point Position Indicators. Full height signal 36(l) was similarly only a PPI.

Signal 33/33(R) was originally positioned as shown, but later moved to position "A". Signal arm 33(R) was a repeating arm mounted well above normal signal height to provide visibility above the platform canopy.



Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

HAMLEY BRIDGE

1879 - 1927

Dual Gauge Era (b.g./ n.g.)

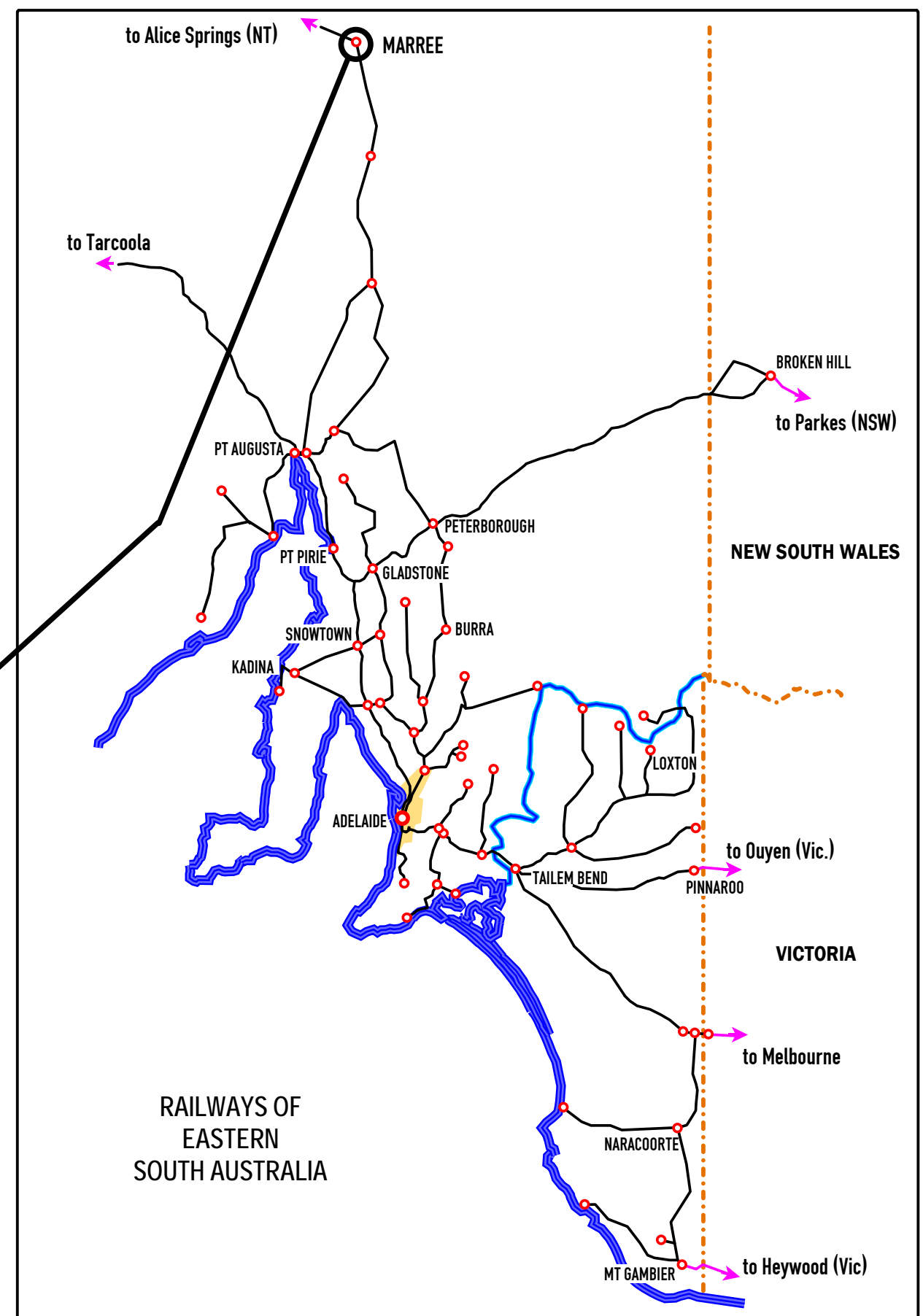
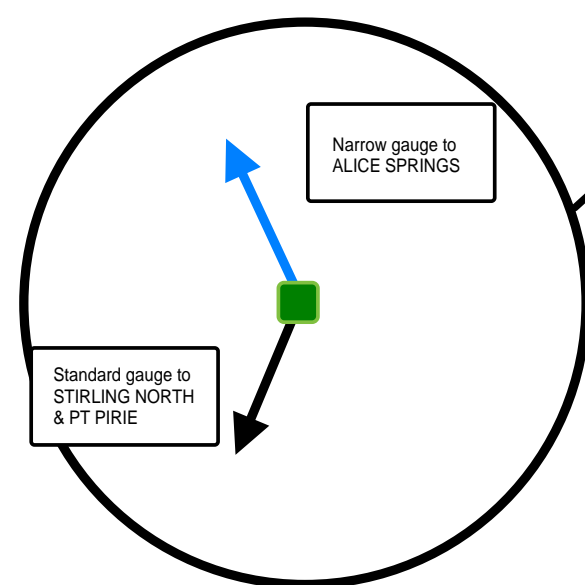
Historic Notes

The narrow gauge line to Oodnadatta and Alice Springs reached Marree (then known as Hergott Springs) in 1884 and the station became a major loading point for stock. Until 1957 it remained as an outback point on the line and shared in the rich history and folklore of this pioneering line.

In 1957 a new standard gauge line was built to Leigh Creek coalfield to provide a more economic operating environment for the increased coal loading required by the second Port Augusta Power Station and the line was extended to Marree to avoid trans-shipping of the stock loading. Thus it became the southern terminal of the narrow gauge Alice Springs line and a true 'change-of-gauge' station with Ghan passengers, and all freight loading, having to change trains.

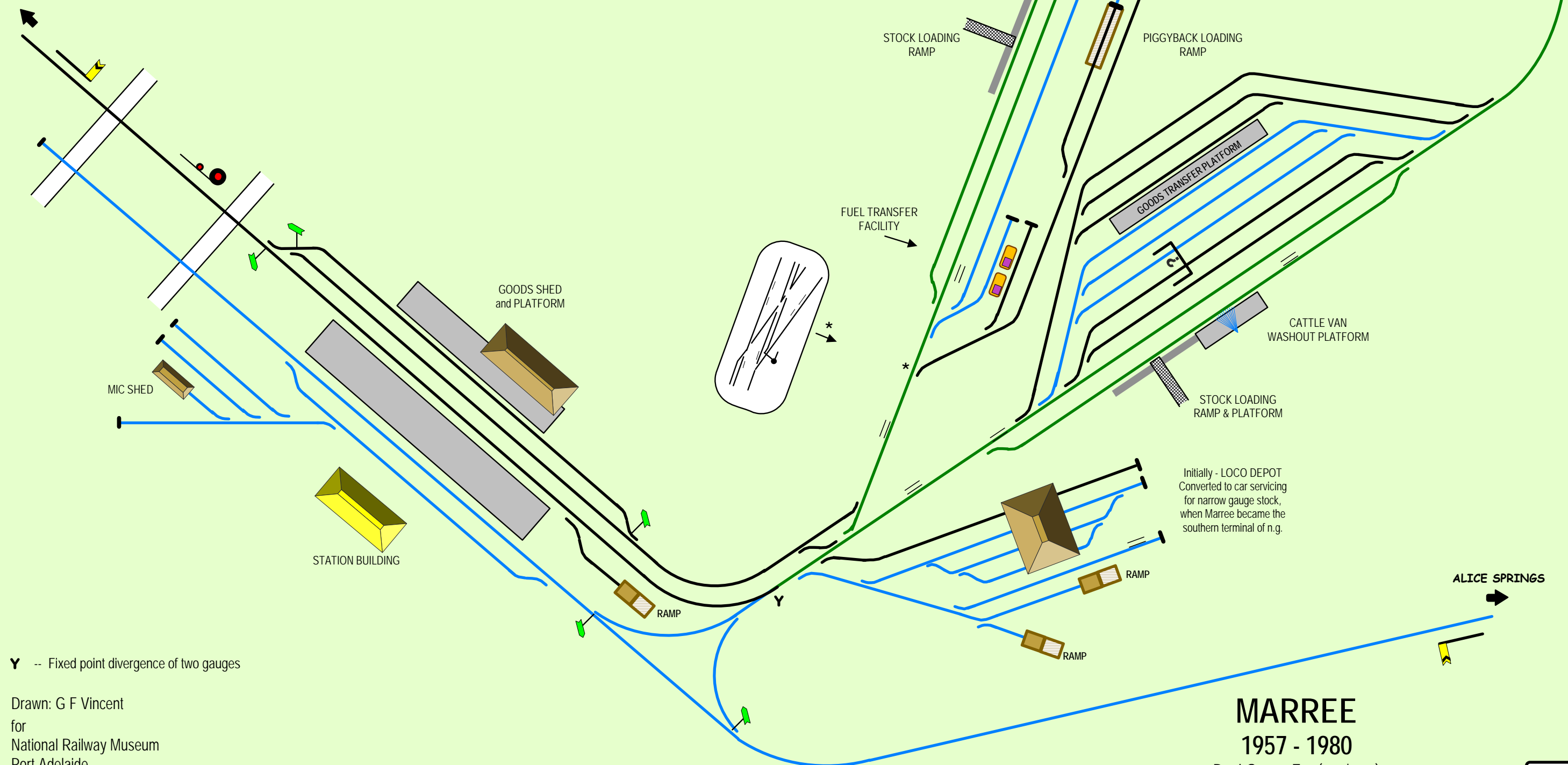
The track layout featured a huge balloon loop known as the 'teardrop' rising from the unusual shape. It also featured a unique section of track work where the loop demanded that the third rail change sides of the track.

Marree's status as a dual gauge station came to an abrupt end with the commissioning of the all weather Tarcoola - Alice Springs line in 1980, and the consequent abandoning of the narrow gauge north of Marree



MARREE

PORT PIRIE



Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

MARREE

1957 - 1980

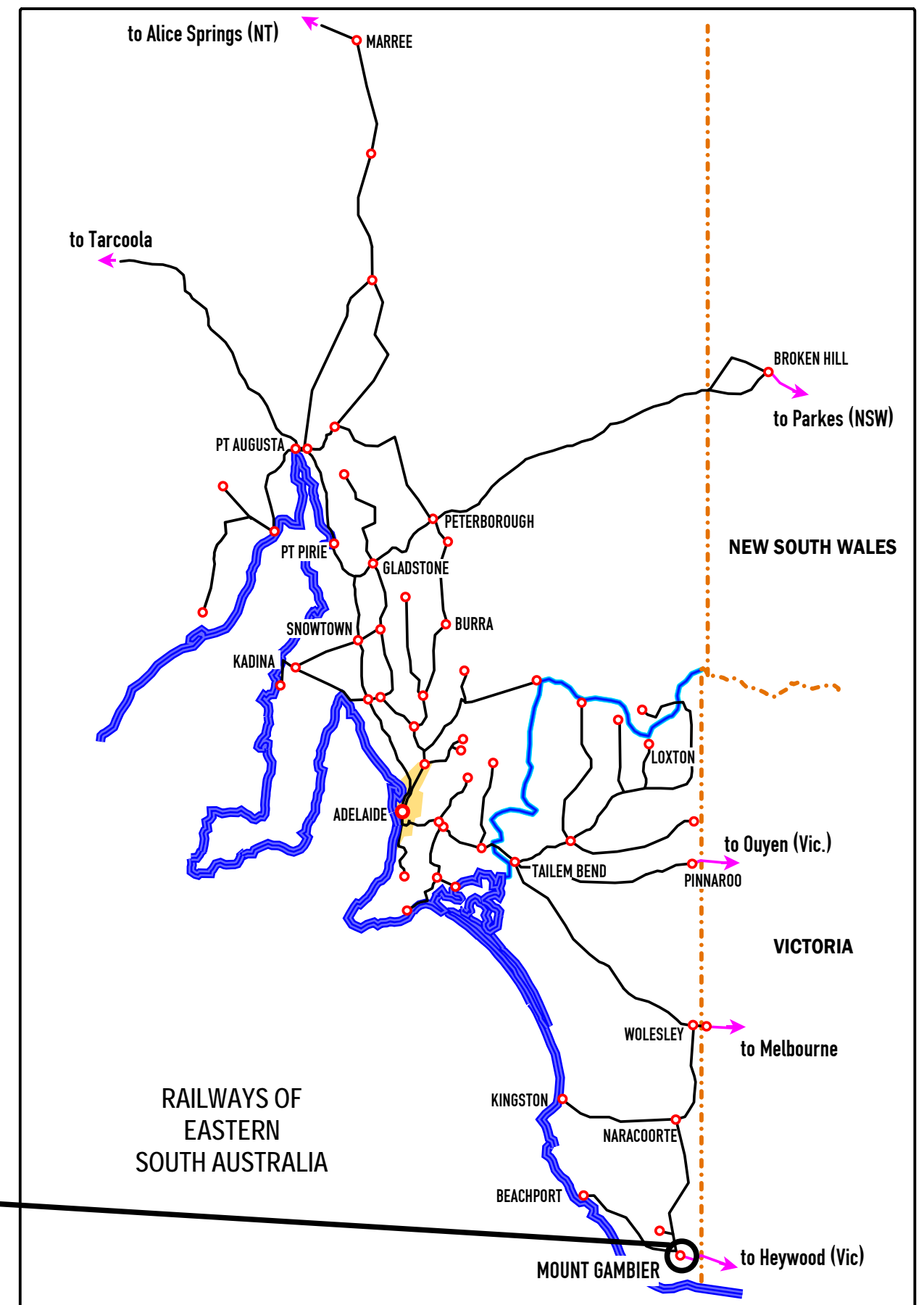
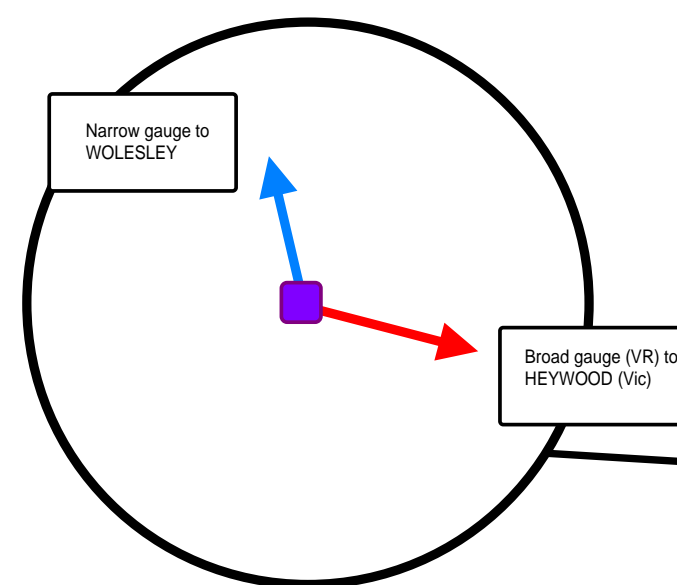
Dual Gauge Era (s.g./ n.g.)

Historic Notes

Narrow gauge arrived in Mount Gambier in 1879 as an independent line from the port of Beachport, and then connected to Adelaide via gauge change at Wolsley in 1887.

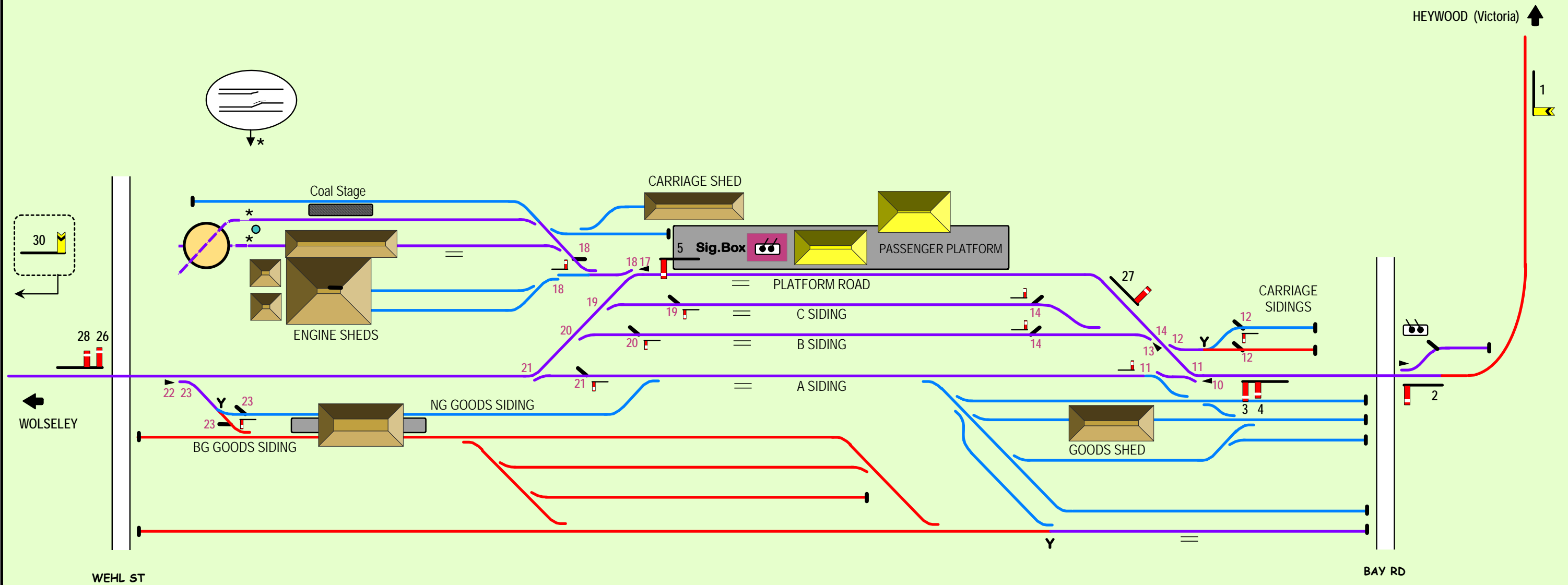
Broad gauge crossed the border from Heywood in 1917 as an extension of the Victorian Railways and created a dual gauge station. It was never really a 'change-of-gauge' station, but rather a terminal of two lines, since there was little reason for 'through' traffic - either passenger or freight. And this situation prevailed until 1956

when the broad gauge replaced the narrow on the South Australian southeast network. At that time Mt Gambier became a one gauge station and was considerably reconfigured with a new locomotive depot and marshalling yard to the north of the original station yard which served the rail needs until 1995. At that time the standardisation of the Adelaide - Melbourne route left the southeast as an isolated network which has been left to decay with no commercial traffic since that time.



MOUNT GAMBIER

Points controlled from the Signal Box are shown numbered in pink - 34
Facing point locks are shown - ▶



Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

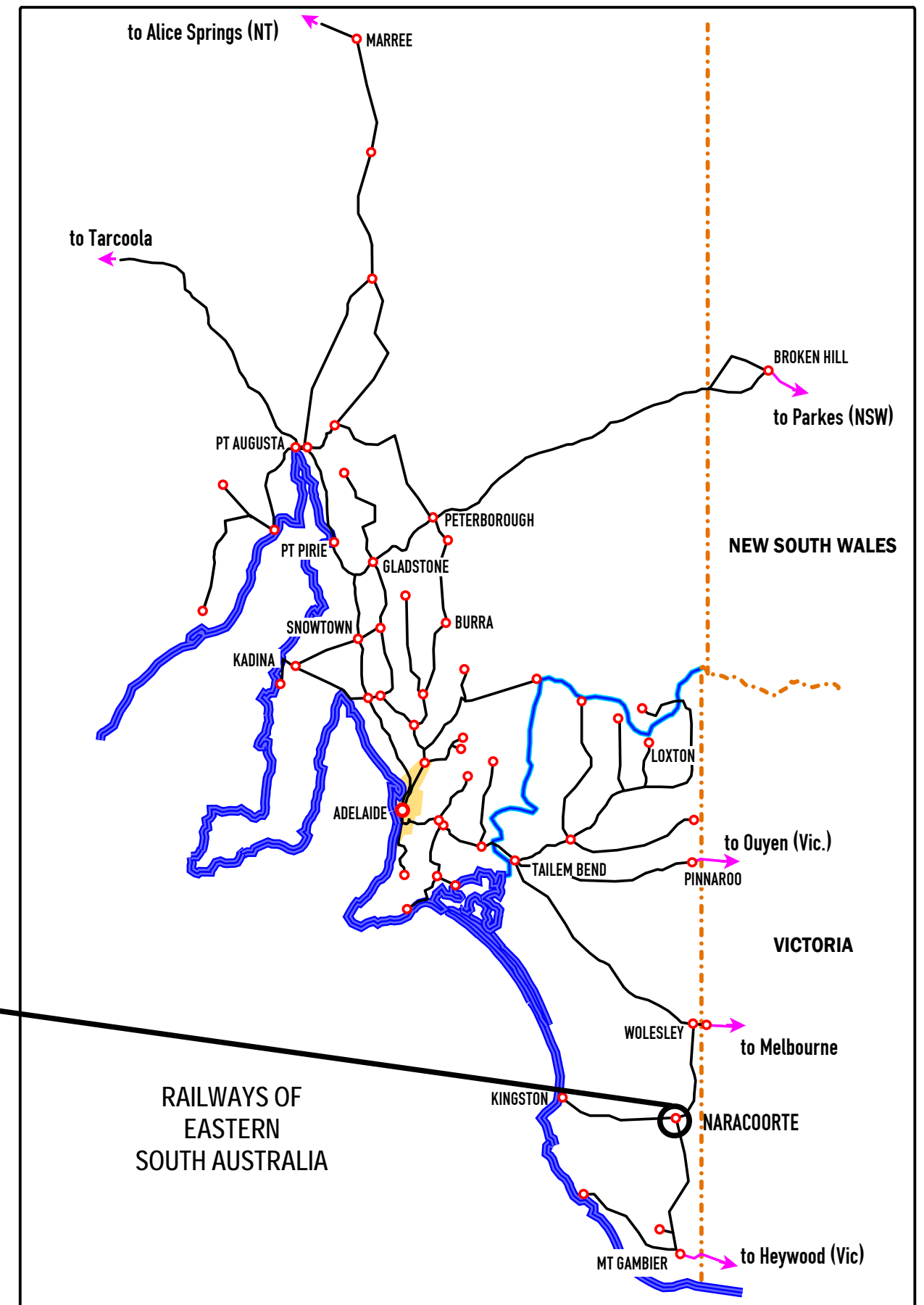
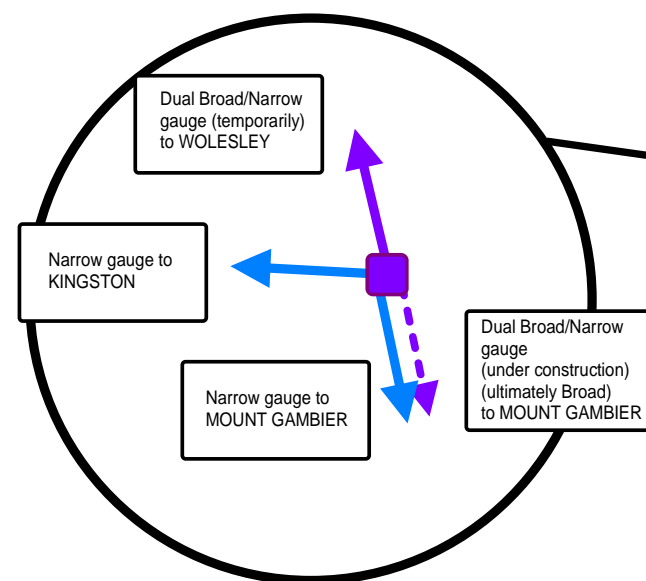
* This drawing depicts the era Narrow Gauge from Wolseley.
meeting the Broad Gauge from Heywood (Victoria).
From the early 1950s preparations started for the arrival
of the Broad Gauge from Wolseley and there were considerable
changes in the transition to a Broad Gauge only yard over a
protracted period of nearly a decade.

MOUNT GAMBIER
1917 - 1952*
Dual Gauge Era (b.g./ n.g.)

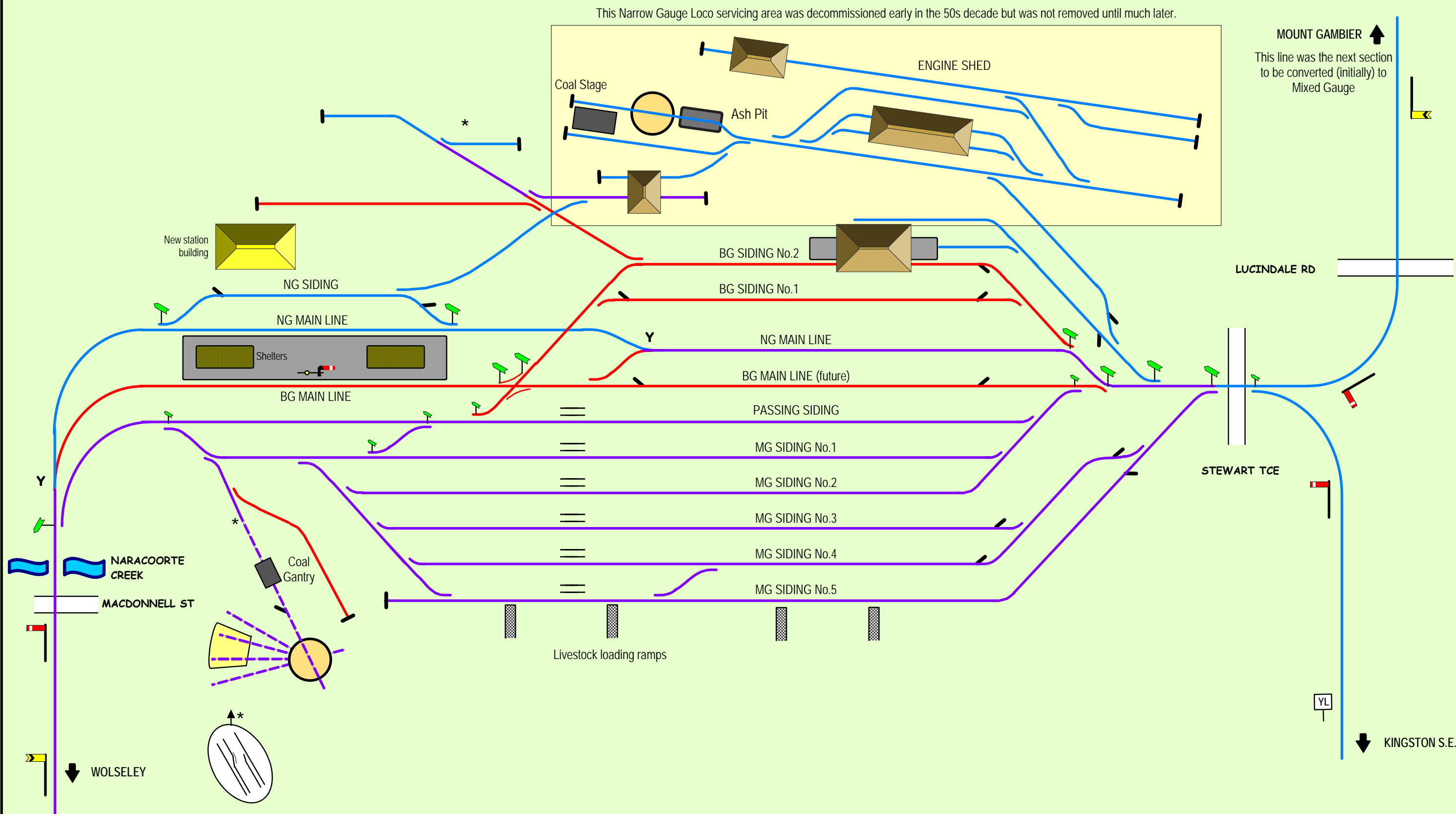
Historic Notes

Naracoorte hosted rails as early as 1876 as a wayside stop on the narrow gauge Kingston - Wolesley - Bordertown/Serviceton line. It then became a junction as the line south to Mount Gambier was added to the South East system in 1887. This status quo remained until post World War II when a project was commenced to convert the whole south East system to broad gauge and eliminate the change of gauge at Wolesley. The conversion extended over almost 10 years and during this time Naracoorte spent an extended (construction) period as a dual gauge station. Because of the slow rate of change, the whole line from Wolesley to Mount Gambier spent periods as an operating dual gauge (bg/ng) line and trains of both gauges were programmed depending on their intended destination. The broad gauge arrived in Naracoorte and it remained as a dual gauge station until the final commissioning of the broad gauge on the branch line to Kingston in 1959. Indeed it probably had movements of both gauges for sometime after that date as the then superfluous third rail was removed from the three lines.

Thereafter Naracoorte served as a broad gauge station until 1995 when the conversion of the main line between Adelaide and Melbourne to standard gauge and the consequent isolation of the broad gauge South East system which has been abandoned and decayed.



NARACOORTE



This Narrow Gauge Loco servicing area was decommissioned early in the 50s decade but was not removed until much later.

MOUNT GAMBIER ↑
This line was the next section to be converted (initially) to Mixed Gauge

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

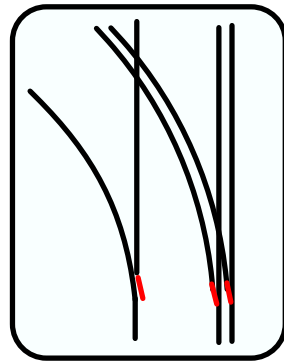
Y -- Fixed point divergence of two gauges

* Naracoorte Dual Gauge era existed only during the conversion of the Wolseley - Mt Gambier line from ng > bg. However this was a drawn out period lasting for most of the 1950s. Since it was a time of great change any drawing can only be a snapshot of a particular time. This version depicts the era circa 1953.

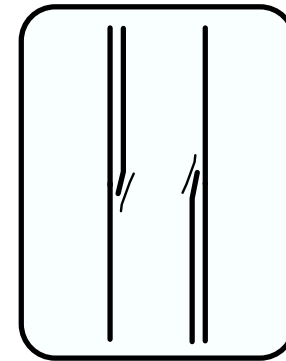
NARACOORTE
1951 - 1959*
Dual Gauge Era (b.g./ n.g.)

INTRICATE TRACKWORK

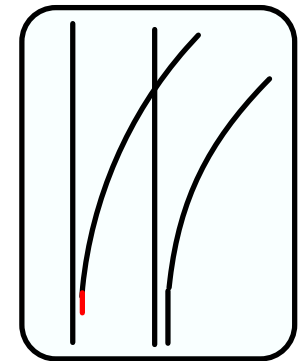
DUAL GAUGE TURNOUTS & TRANSITIONS



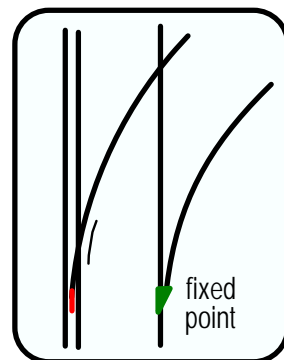
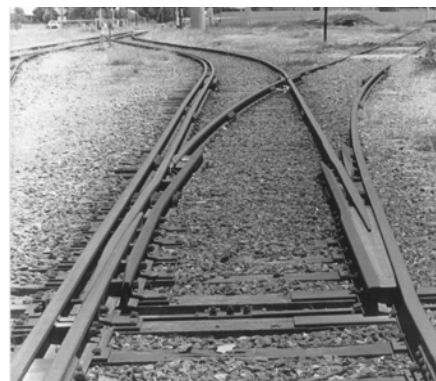
Turnout: (b.g+s.g) - Main and Branch. 3 moving blades



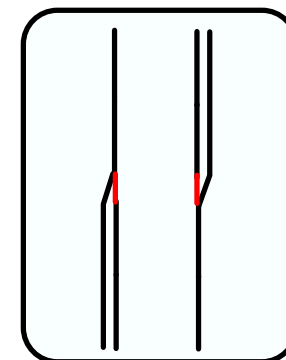
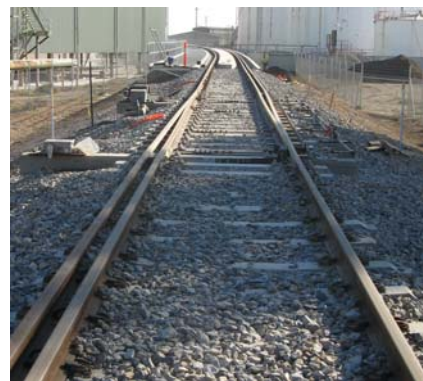
Transition: (b.g+s.g) Conventional transitions (both tracks)



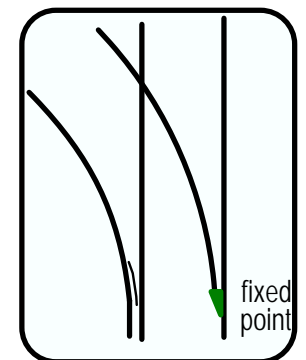
Divergence: (s.g+n.g) to n.g.Main & s.g. Branch. 1 moving blade



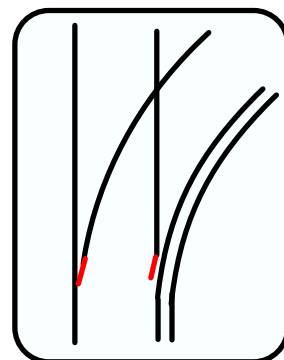
Turnout: (b.g+ s.g) Main to b.g Branch. 1 moving blade



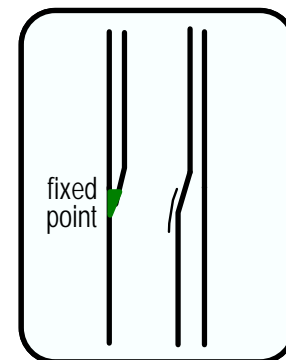
Transition: (b.g.+s.g.) Switched transition. 2 contra moving blades



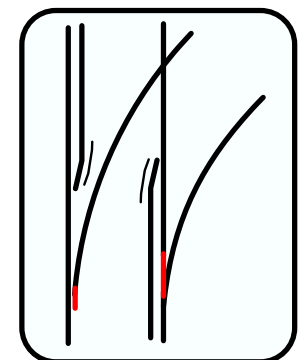
Divergence: (b.g+s.g) to s.g.Main & b.g. Branch. no moving blade



Turnout: (b.g+ s.g) Main to b.g Main. 2 moving blades



Transition: (b.g+n.g) "3 rail" >>> "Centre line aligned"



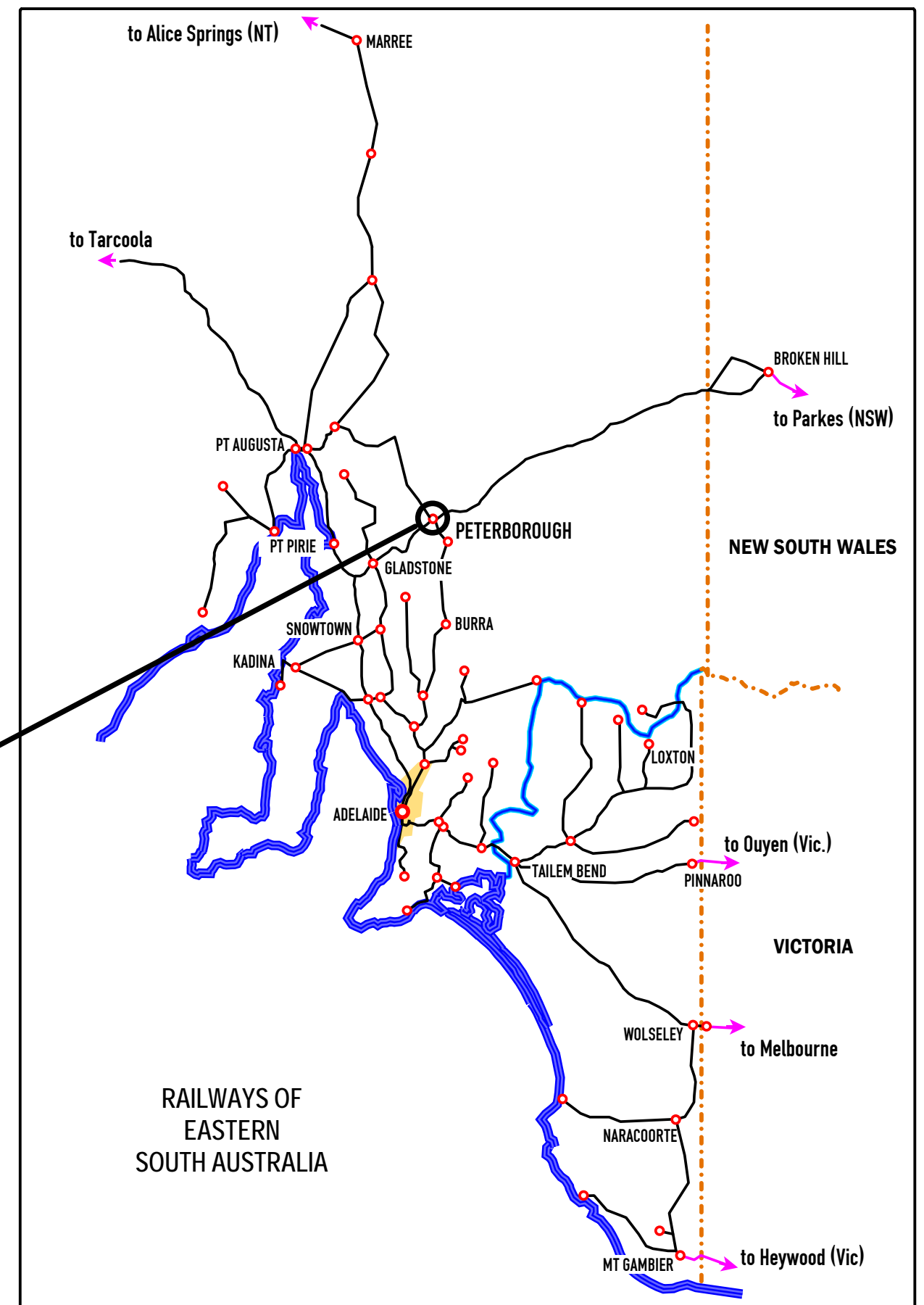
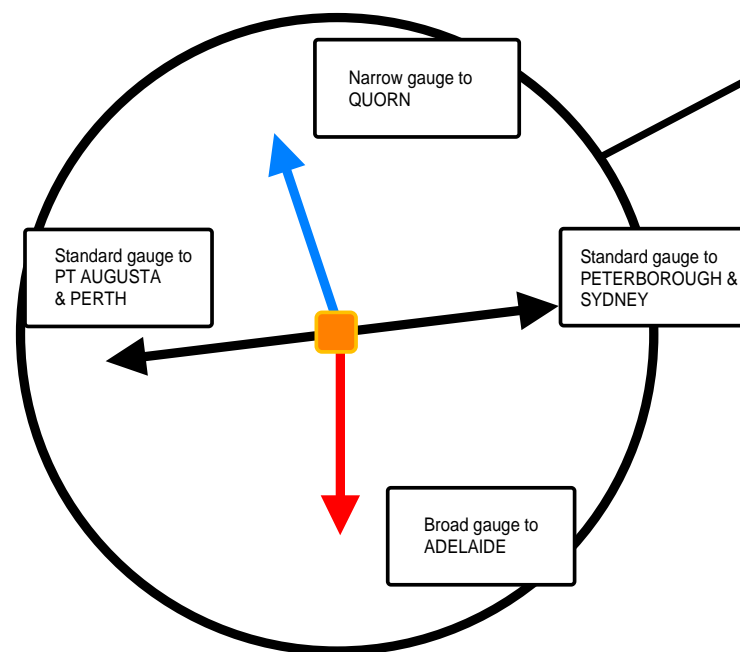
Turnout: (b.g+ s.g) Main to b.g Branch. 2 moving blades
[Integrated 3rd rail transition]

Historic Notes

Peterborough (then known as Petersburg) established its connection with the railways in 1880 when a narrow (1067mm) gauge line pushed inland from Port Pirie to tap the farm lands produce. Later in the same year a line from Adelaide arrived (via a break of gauge at Terowie), and within a further year a line had extended north to Quorn connecting with the established line across to Port Augusta. By 1888 a line was built to Broken Hill to transport the valuable ore products of the area. Sitting thus at a four way junction it was a natural place to become the northern headquarters and was to remain so for over a century.

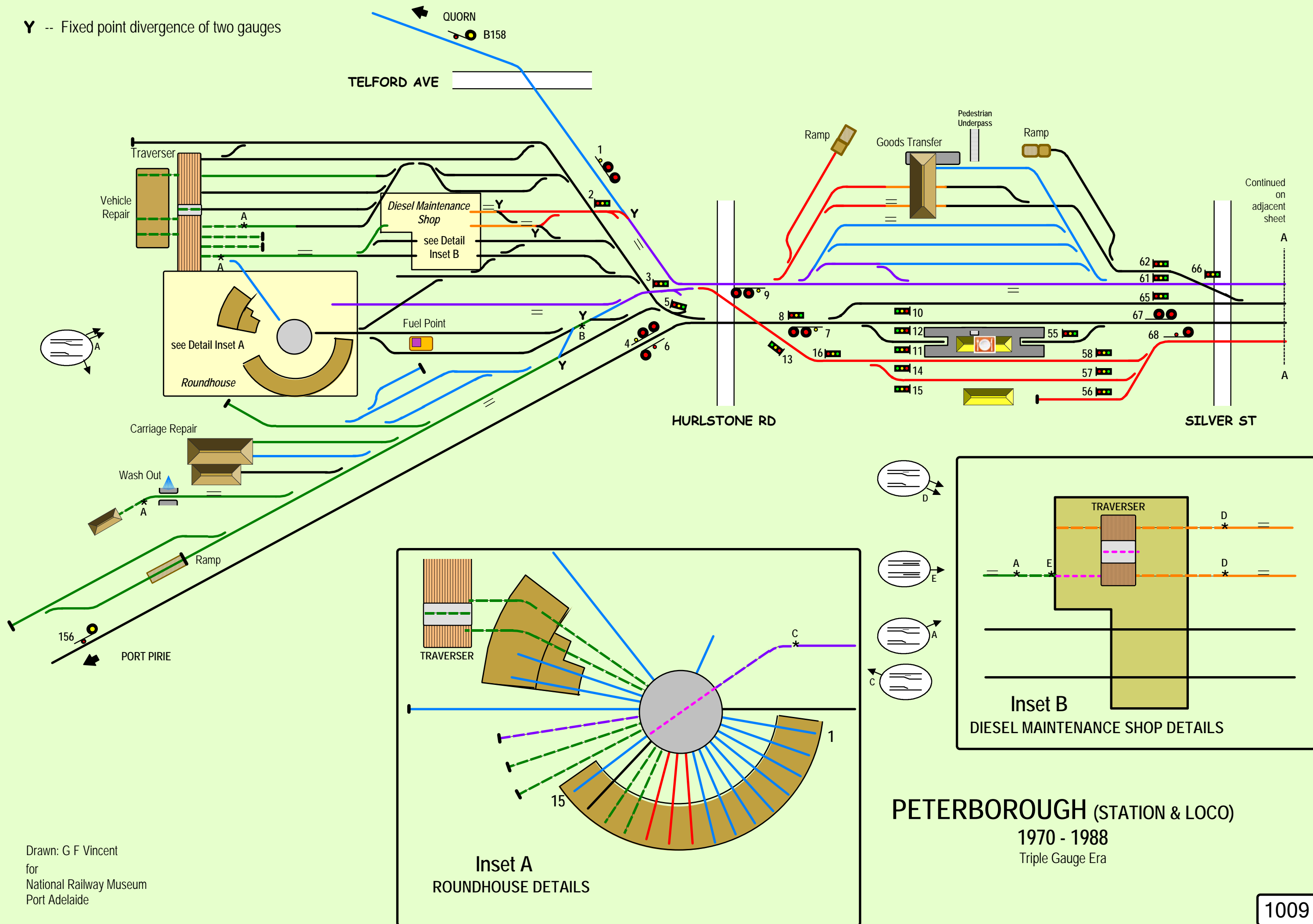
The first major change occurred in 1970 when the Broken Hill- Coonamia line was converted to standard (1435mm) gauge as part of the upgrading of the Sydney-Perth line to standard gauge. As a component of this project the broad gauge Adelaide- Terowie line was extended to Peterborough creating a three gauge station. Unlike its neighbour at Gladstone there was sufficient space available to build separate marshalling and transfer yards with little dual, and almost no triple gauge track. The yards were built for the transfer of livestock and general goods, and a broad/standard gauge bogie exchange plant was provided. The only passenger service was Adelaide - Broken Hill. The third era for this station began in 1993 when standard gauge was established between Crystal Brook and Adelaide making the Peterborough-Adelaide connection redundant. By 1988 the broad gauge was removed and the narrow gauge carrying very little traffic was abandoned.

For some years the narrow gauge operated as a tourist railway but eventually that closed and the station reverted to a crossing loop on the main east-west route.



PETERBOROUGH

Y -- Fixed point divergence of two gauges



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

Continued
on
adjacent
sheet

A

A

Broad Gauge
MARSHALLING YARD

RAILWAY TCE

Standard Gauge MARSHALLING YARD

BOGIE EXCHANGE

SHEEP TRANSFER

GOODS TRANSFER PLATFORM

SG - BG TRANSFER YARD

STOCK VAN
WASHOUT

STOCK LOADING
RAMPS and PLATFORMS

BROKEN HILL

DAWSON RD

PETERBOROUGH (SG/BG YARDS)

1970 - 1988

Triple Gauge Era

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

Y -- Fixed point divergence of two gauges

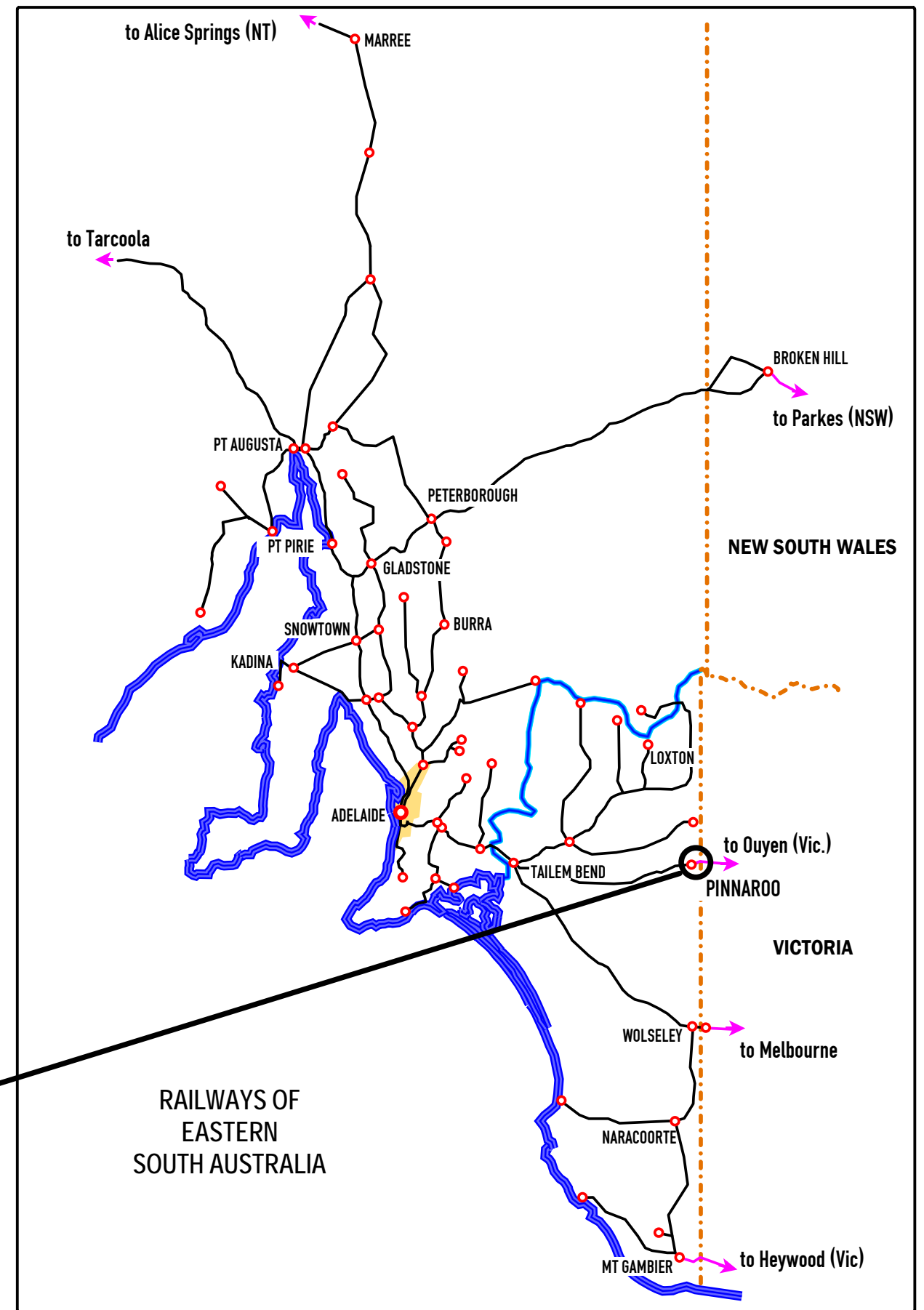
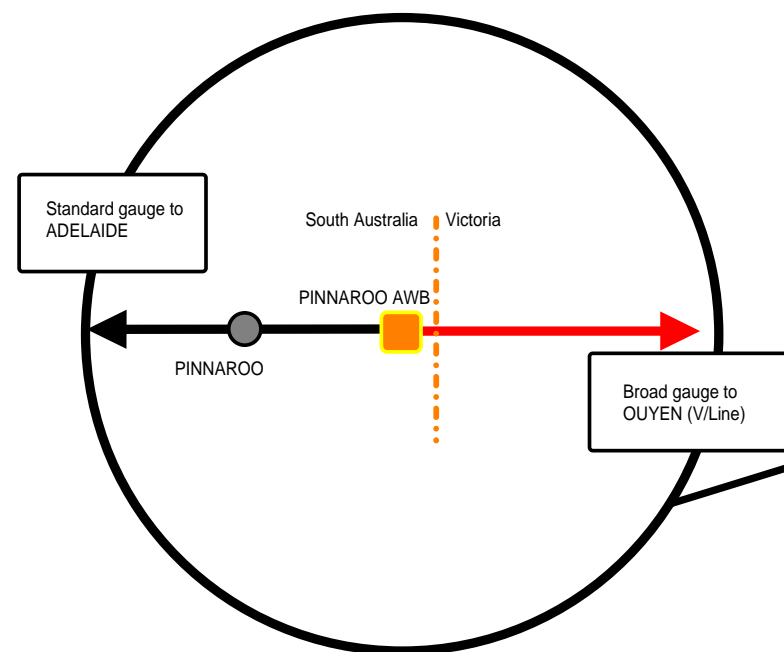
1010

Historic Notes

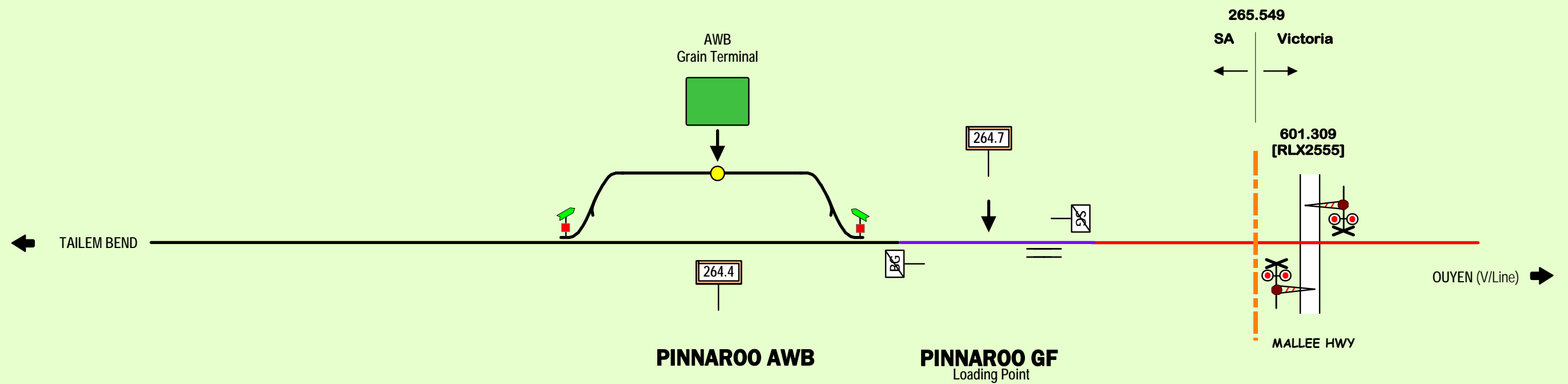
A broad gauge railway arrived at Pinnaroo from Adelaide in 1906 and a line of the same gauge formed a connection into Victoria in 1915. Little changed until 1995 when the main interstate line from Adelaide to Melbourne was converted to standard gauge and after a very slow conversion, the Tailem Bend to Pinnaroo branch was opened to standard gauge traffic in 1998. At that time, the broad gauge link to Victoria was simply cut at the eastern end of the Pinnaroo yard and traffic in that direction suspended.

In 2005, a new grain terminal was established several kilometers to the east, just inside the SA/Vic border and following negotiations about the rights to the track, GWA assumed control of the track east of Pinnaroo yard and converted it to standard gauge to a point about 1/2 kilometre short of the border (defined as Pinnaroo AWB), leaving a short overlap with the Victorian broad gauge. For the most part load out of grain was towards SA, but for several years broad gauge grain trains loaded at a portable facility for movement into Victoria.

This facility was short lived as V/Line closed the line west of Panyita because of the state of the track and the status as a dual gauge location evaporated.



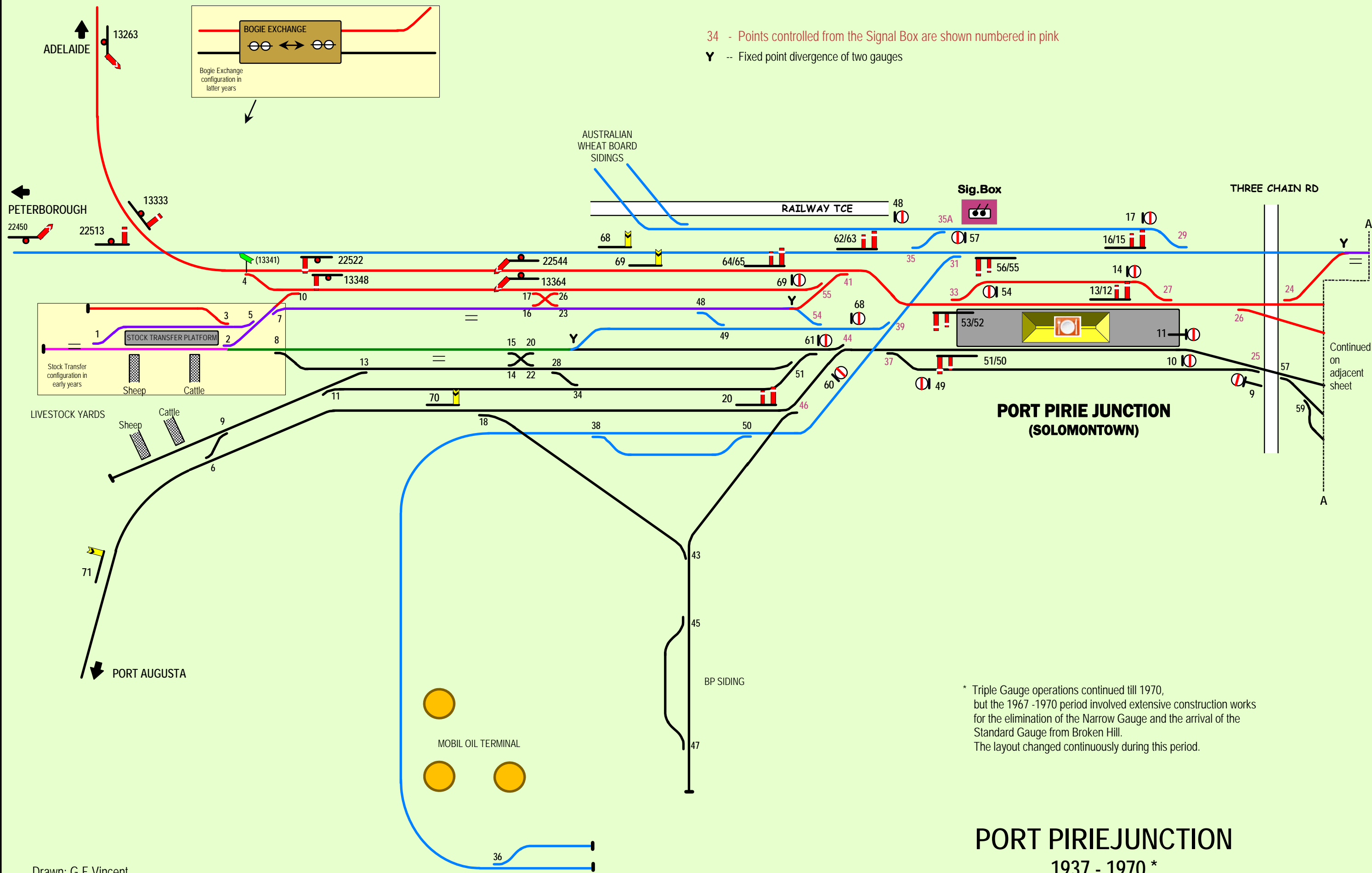
PINNAROO



* This little used facility was made redundant as a dual gauge location when V/Line closed the section of line beyond (west of) Panitya.

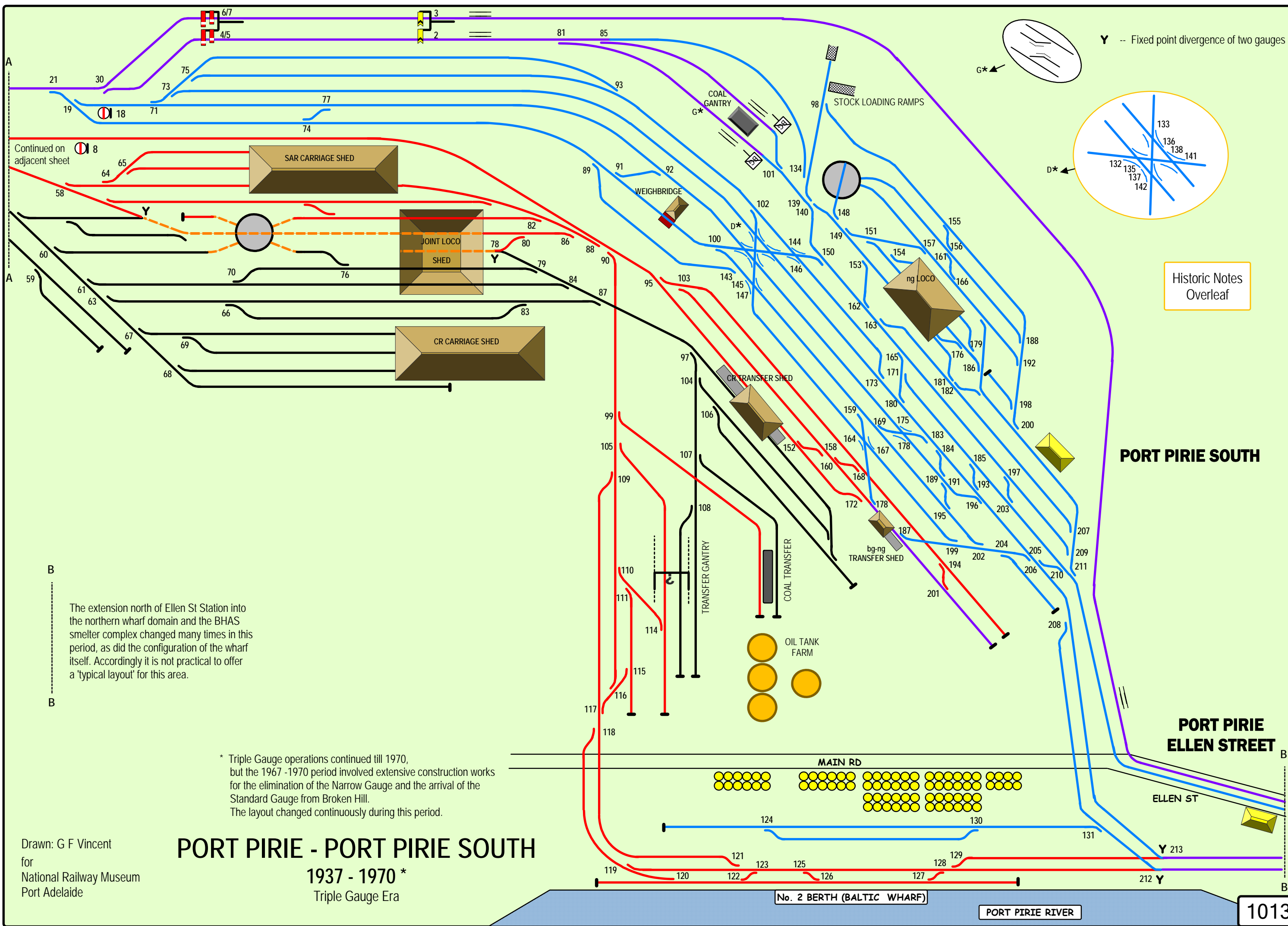
Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

PINNAROO AWB
2009 - 2011*
Dual Gauge Era (b.g./ s.g.)



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

PORT PIRIEJUNCTION 1937 - 1970 * Triple Gauge Era



The extension north of Ellen St Station into the northern wharf domain and the BHAS smelter complex changed many times in this period, as did the configuration of the wharf itself. Accordingly it is not practical to offer a 'typical layout' for this area.

* Triple Gauge operations continued till 1970, but the 1967 -1970 period involved extensive construction works for the elimination of the Narrow Gauge and the arrival of the Standard Gauge from Broken Hill. The layout changed continuously during this period.

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

PORT PIRIE - PORT PIRIE SOUTH

1937 - 1970 *
Triple Gauge Era

No. 2 BERTH (BALTIC WHARF)

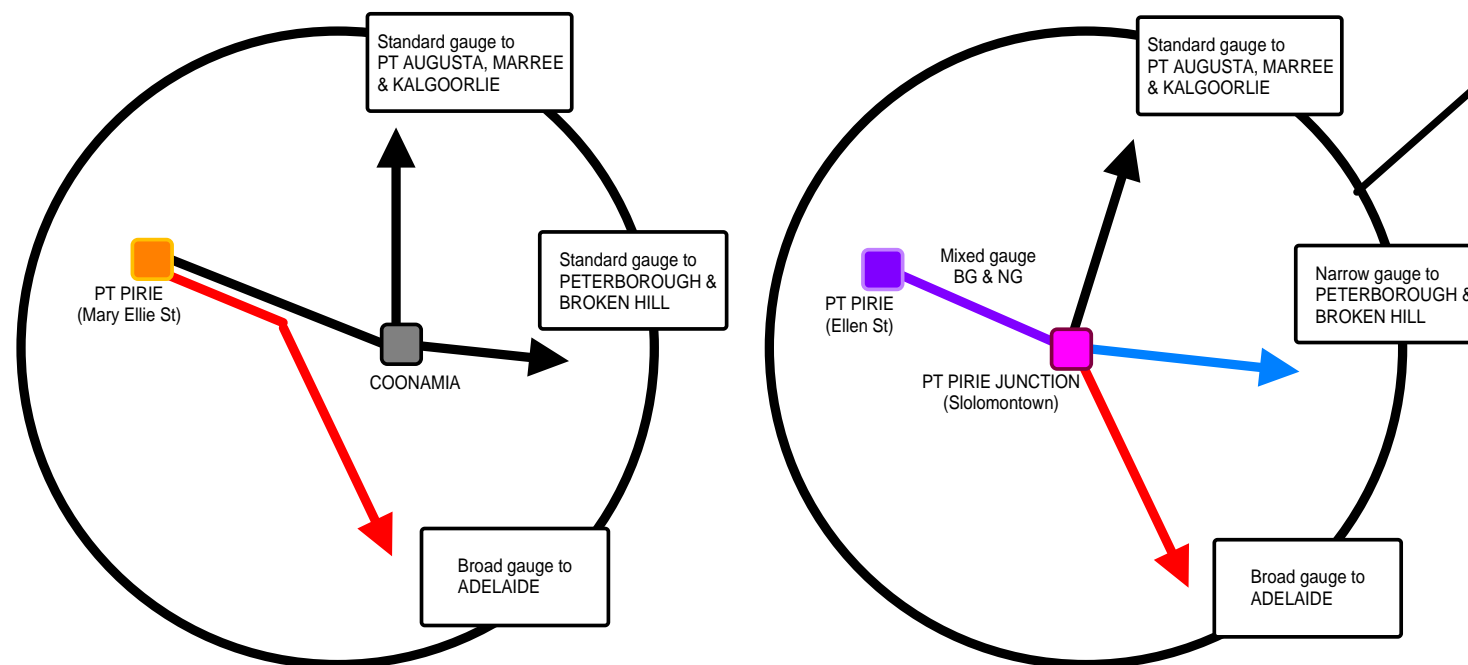
PORT PIRIE RIVER

Historic Notes

With its significance as a port, Port Pirie was the start point for railway construction in the mid north in 1875 when a 1067mm gauge line pushed inland to Gladstone, Peterborough (then Petersburg), and finally to Broken Hill in 1888. As a narrow gauge terminal, Pt Pirie functioned as a busy complex of industrial and wharf loading facilities until 1937.

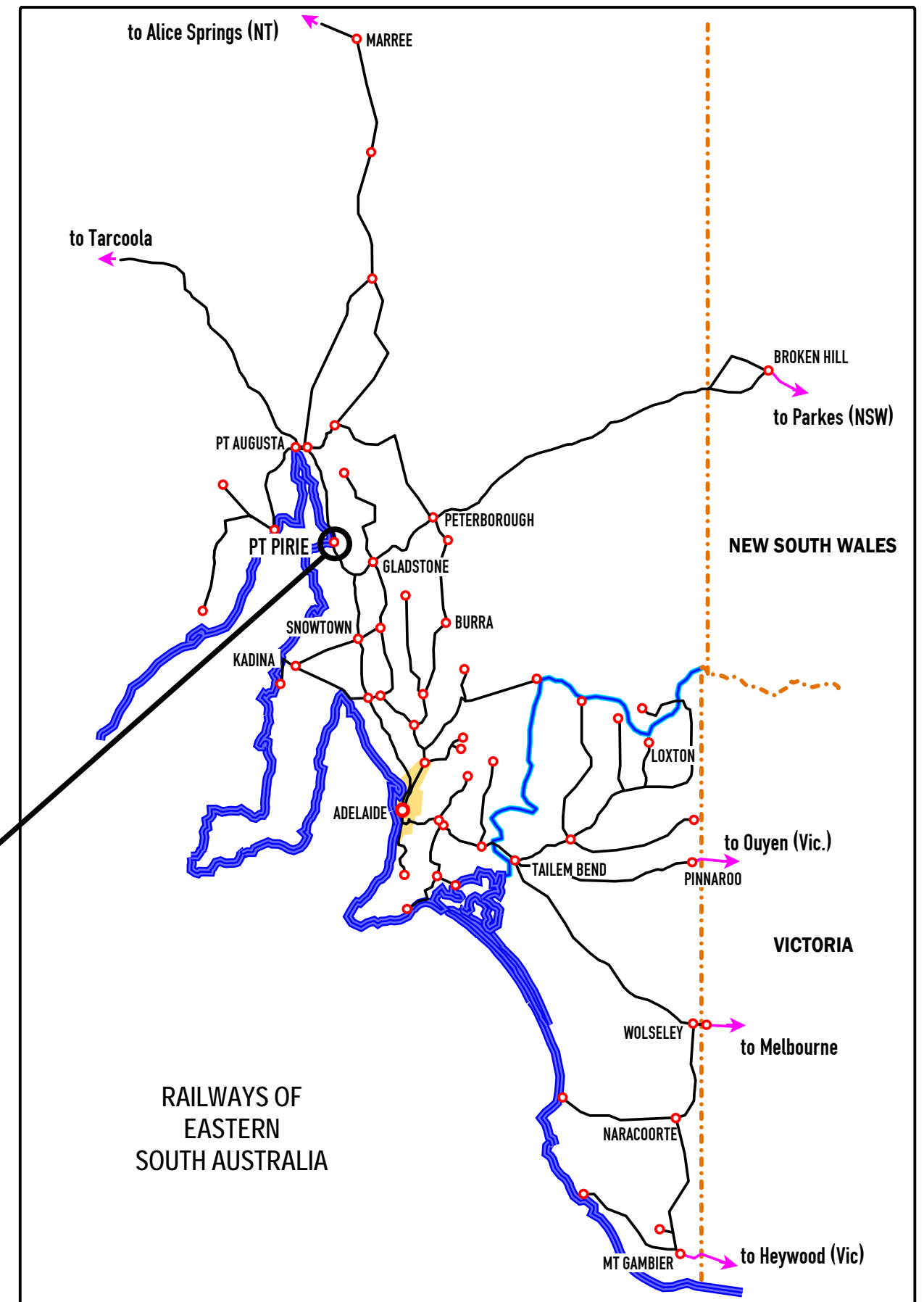
In this year, lines were completed from Adelaide - broad gauge (1600mm) - and from Kalgoorlie - standard gauge (1435mm) - making it the first triple gauge complex in Australia, possibly the world. The drawings show the complex as a whole, but in reality there were four discrete parts plus the various industrial off shoots. Pt Pirie Junction was created in 1937 to accommodate the broad-standard passenger interchange and included minor narrow gauge facilities. Pt Pirie South yard and the eastern "subsidiary sidings" provided the freight interchange between the three gauges. These components made up the truly three gauge 'station'. The pre-existing Ellen Street station was converted to broad-narrow dual gauge and although it was technically a separate entity it has been included to complete the picture.

Because Pt Pirie was the meeting point for two separate railway administrations - the Commonwealth Railways and the South Australian Railways - the standard gauge was kept almost entirely separate and hence, unlike Gladstone, there was no three gauge track here. In preparation for the arrival of the standard gauge from Broken Hill, Ellen St was abandoned and a new broad-standard two gauge station (Mary Elie St) was opened in 1967, but 3 gauge operations continued until 1970. The 3rd era continued until the Crystal Brook-Adelaide standard gauge connection eliminated the broad gauge in 1982.



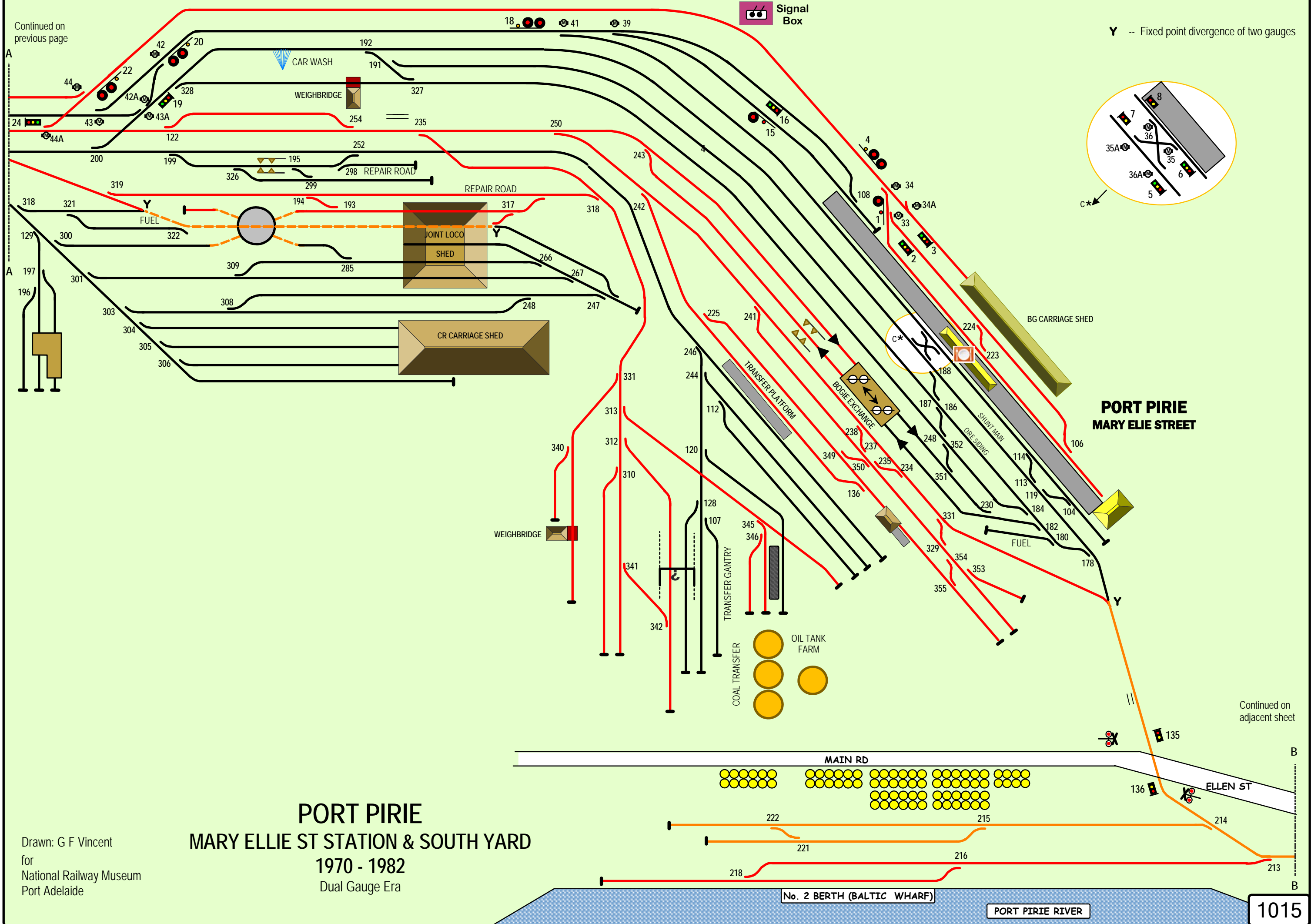
1970 -- 1982

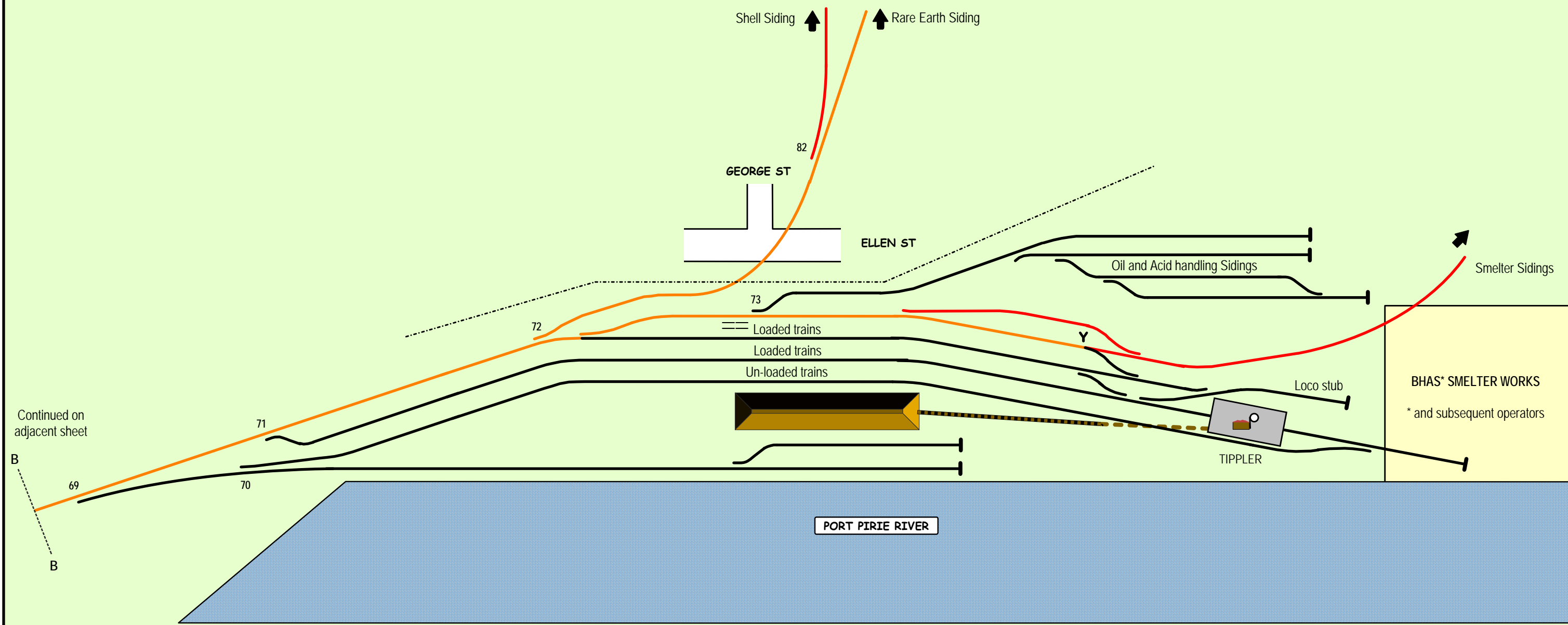
1937 -- 1967/70



PORT PIRIE

Continued on
previous page





Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

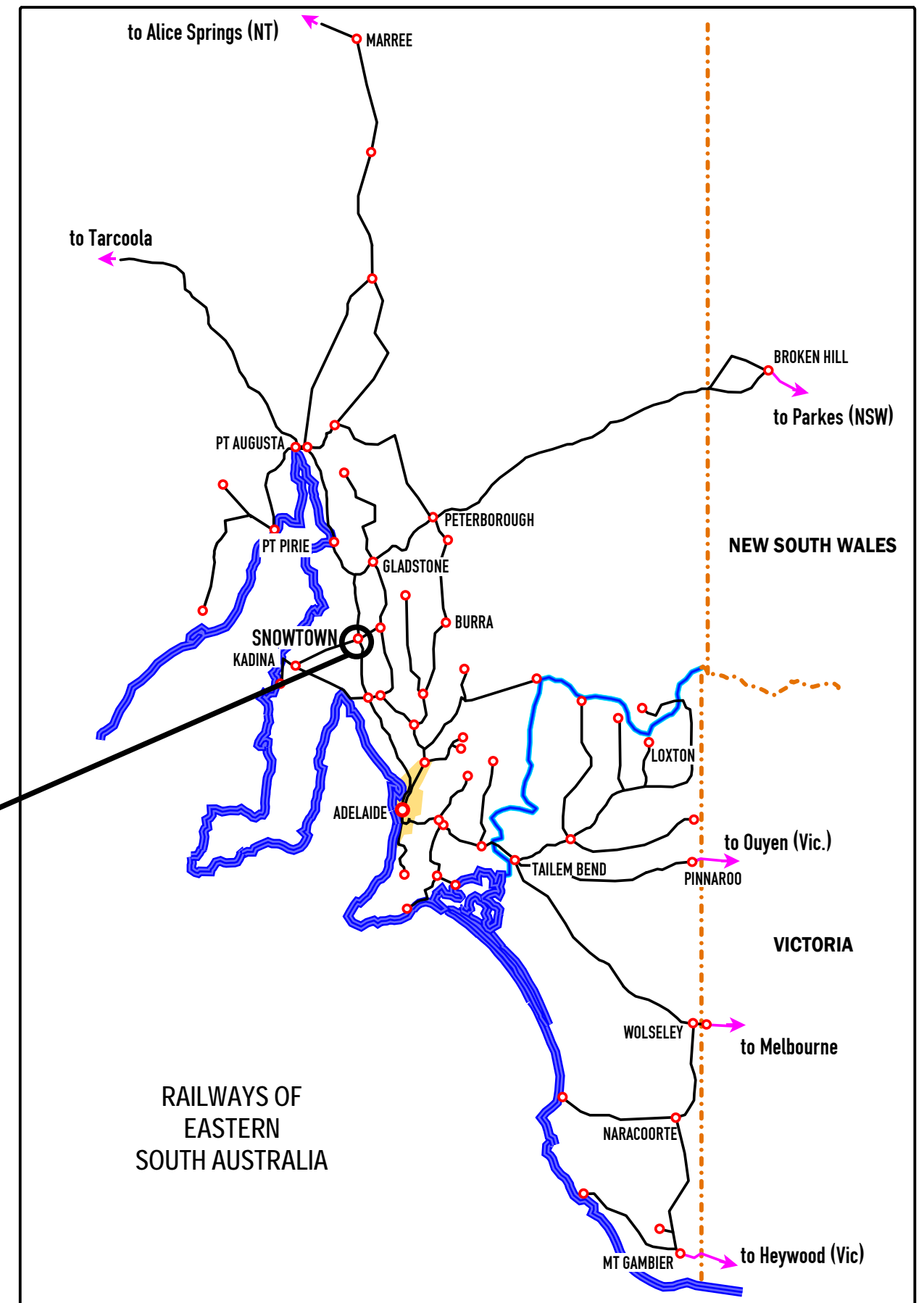
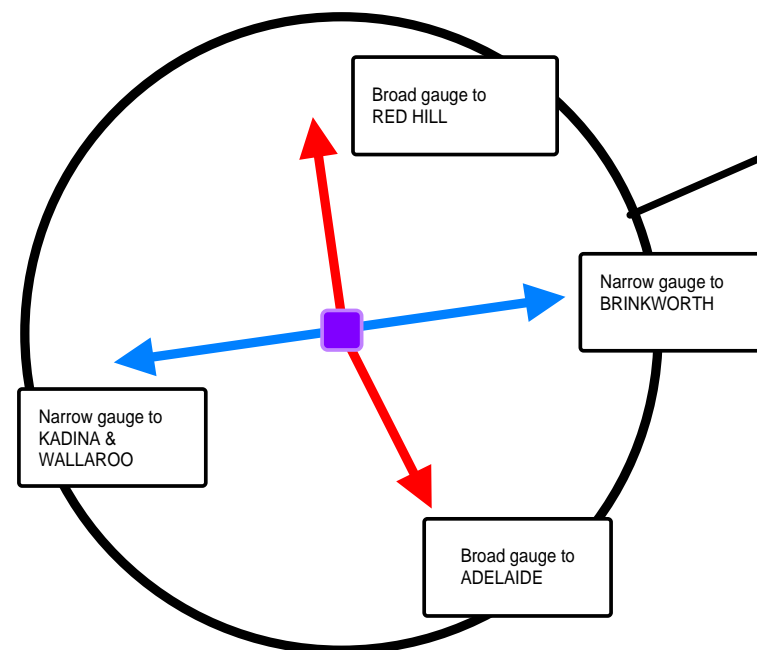
PORT PIRIE (BHAS SMELTER & WHARF)
1970 - 1982
Dual Gauge Era

Historic Notes

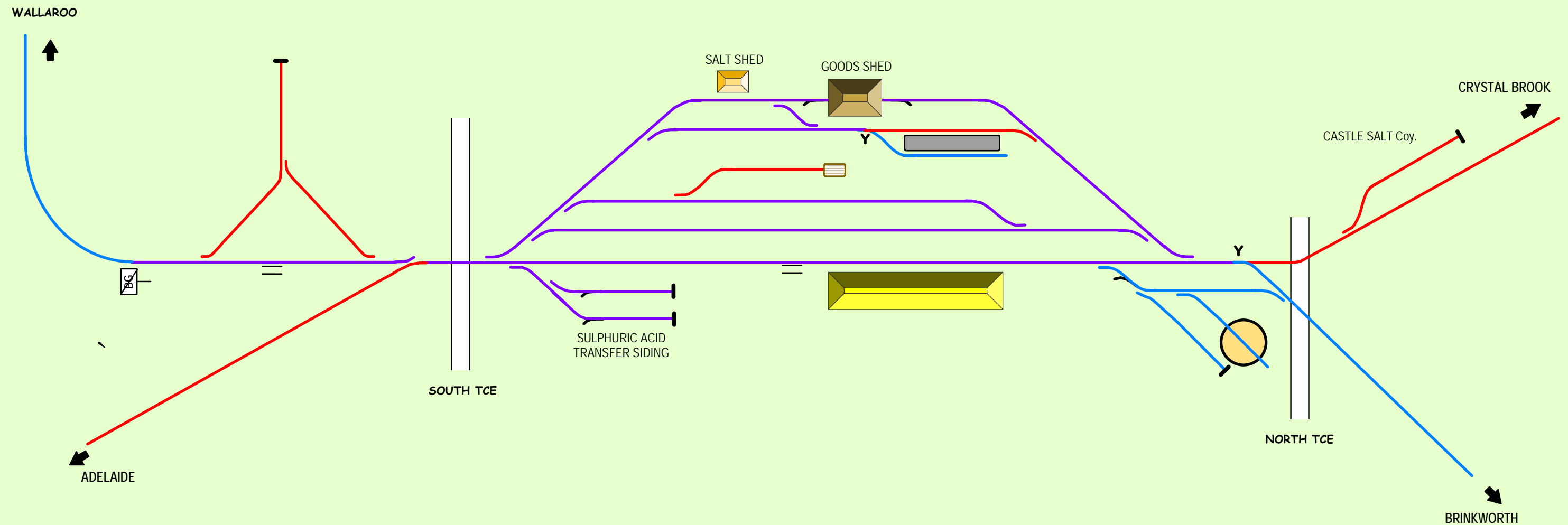
The railway reached Snowtown from Kadina in 1879 and extended on to Brinkworth in 1894. As such Snowtown was a stopping place on this narrow gauge line carrying farm produce through Kadina to the port at Wallaroo and served this purpose for over 40 years before a north-south line was built heading for Port Pirie. The development of this broad gauge line passed through Snowtown in 1923 and created a dual gauge station at the junction of these two independent lines.

In 1927 however the whole of the "Western System", which included the Kadina - Brinkworth line was converted to broad gauge and Snowtown's first period as a dual gauge station - just 4 years - came to a close.

Much later (1982) it again gained that status....
refer to the section on Mixed Gauge Lines -- *Snowtown - Wallaroo Line*



SNOWTOWN



Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

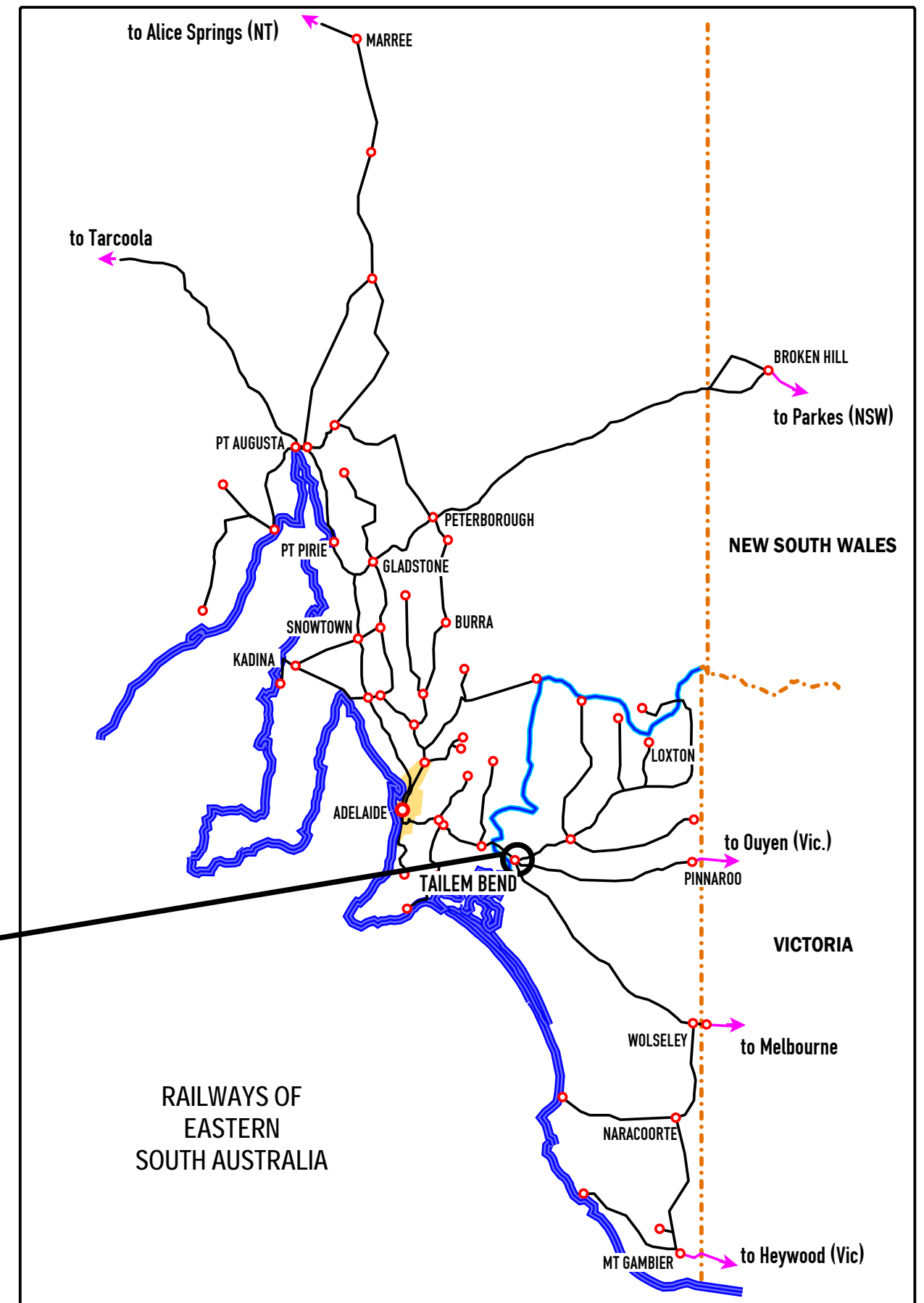
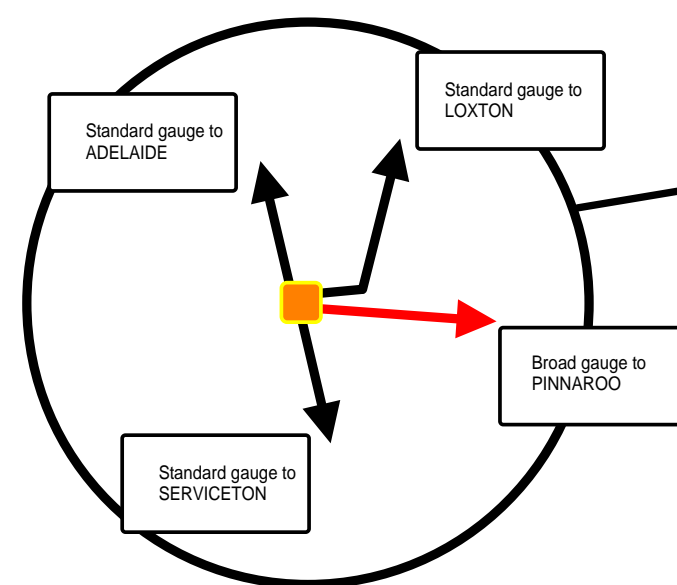
SNOWTOWN
1923 - 1927
Dual Gauge Era (b.g./ n.g.)

Historic Notes

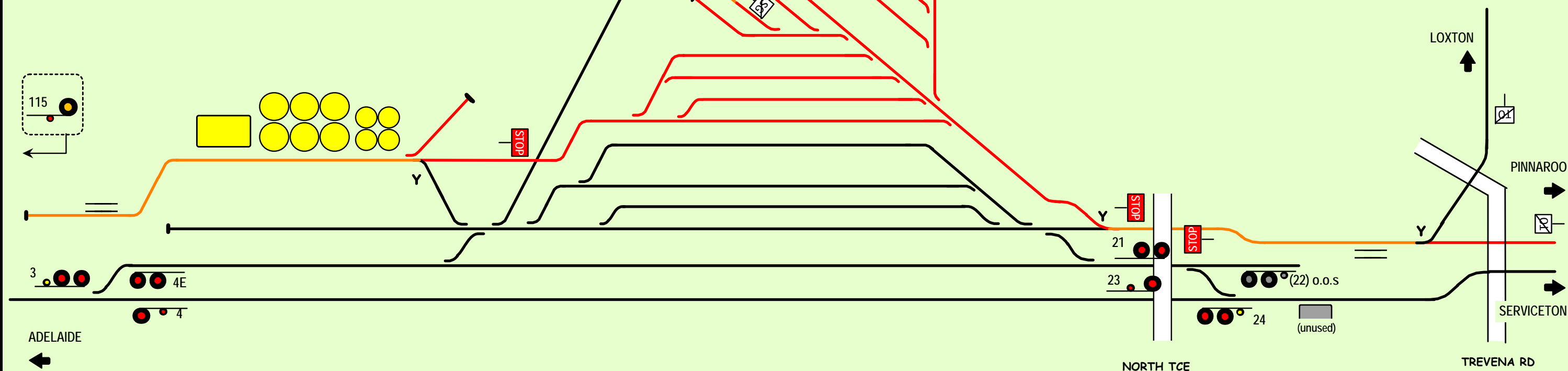
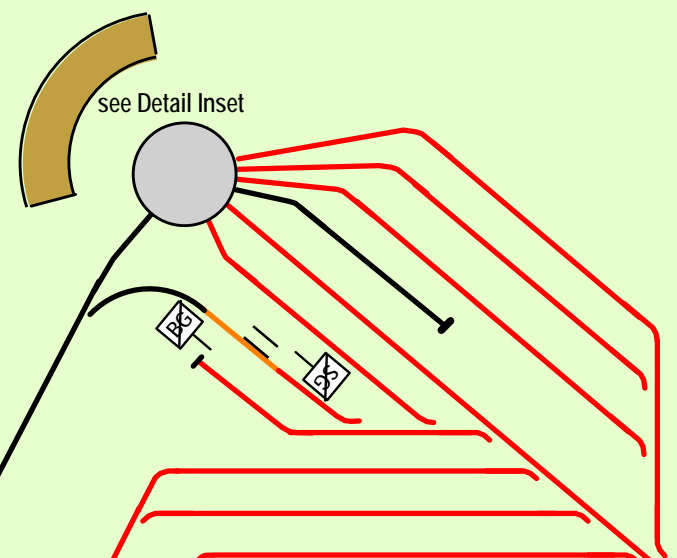
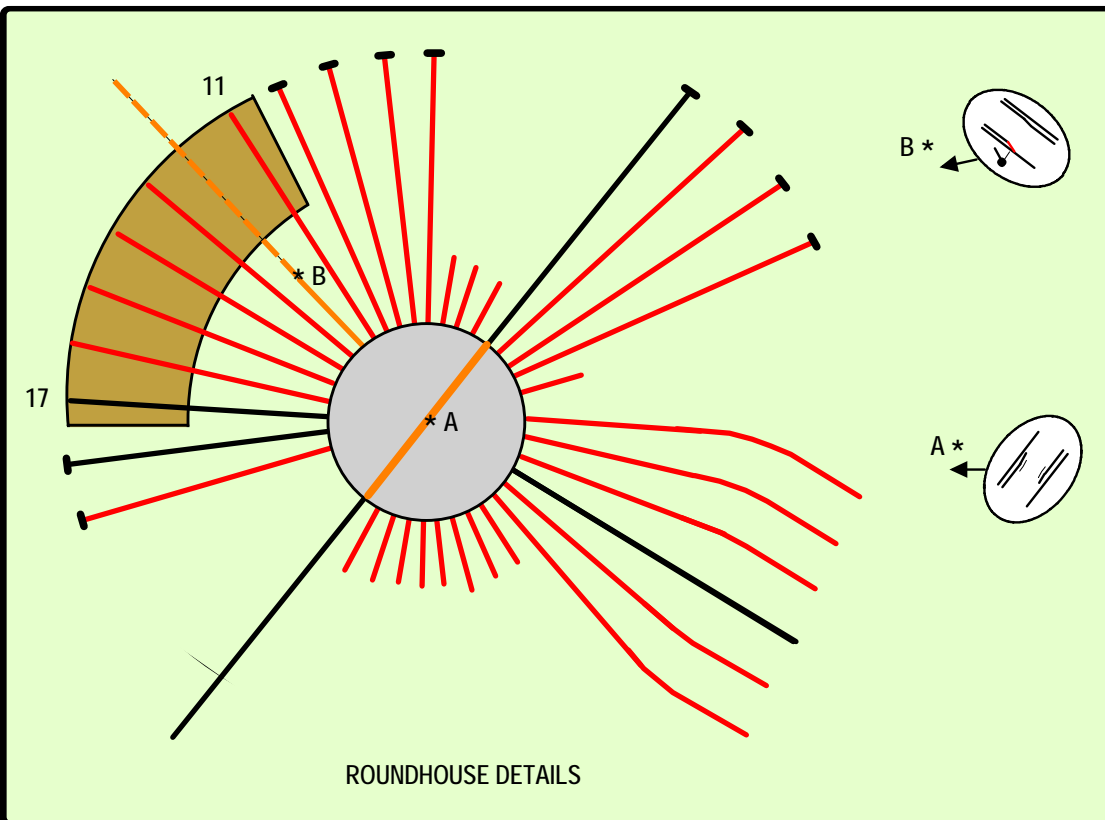
Tailem Bend is the junction on the interstate line to Melbourne, serving the diverse branch lines fanning into the Murray Mallee. For most of its history it has been a bastion of broad gauge with two branches leaving towards Pinnaroo and the remainder of the Mallee lines via Karoonda. After the peak era of railways in the 1950s, several of the Mallee branch lines closed and by the 1990s the only line extending beyond Karoonda was that to Loxton (which was shortened back to the grain terminal at Tookayerta a few kilometers south of Loxton).

In 1995 the Adelaide- Melbourne line was converted to standard gauge as the final step in the national gauge conversion program. The line to Tookayerta (Loxton) was converted concurrently with the major project, but the Pinnaroo line was left for available finance to complete the change and thus for a little over two years, two gauges remained at Tailem Bend whilst the Pinnaroo line was converted by a single gang.

Tailem Bend reverted to a single gauge station (standard gauge) in 1998



TAILEM BEND



Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

TAILEM BEND
1996 - 1998
Dual Gauge Era (b.g./ s.g.)

MULTIGAUGE TURNTABLES

A CASE STUDY IN SYMMETRY

To state the obvious, the track on a turntable must match the track approaching the table regardless of which end of the table is connected for access!

When multi-gauge track is in use, this becomes more involved and there are two different design approaches.

SYMMETRICAL

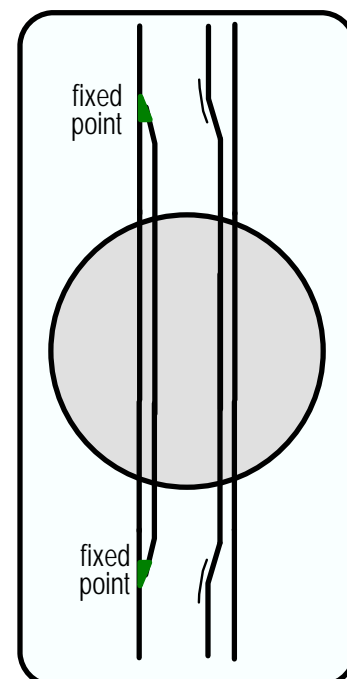
Symmetrical multigauge turntables use both rails for each gauge laid on a common centre-line. This is an unusual configuration for the rest of the rail yard and conversions of the track arrangement are required on each approach to the turntable. If the yard involves broad and standard gauges, there is insufficient room for the normal standard gauge rail head and special rail is laid (see below)



Triple gauge symmetrical
(Note the standard gauge thin railhead)



Dual gauge symmetrical

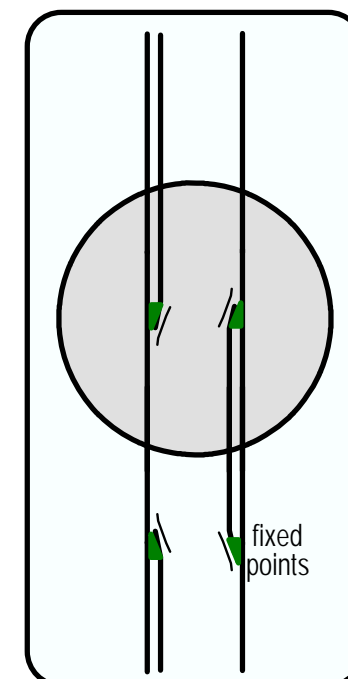
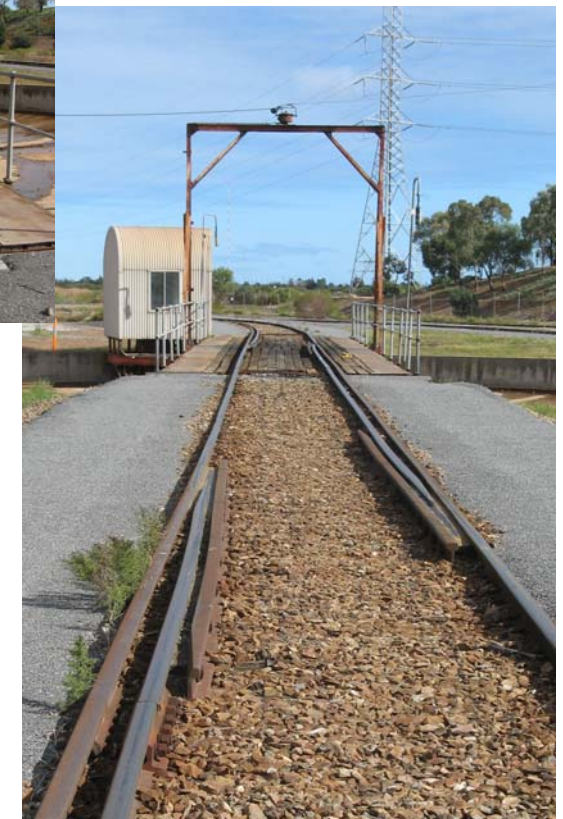


Typical layout

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

ASYMMETRICAL

An asymmetrical design uses a common rail table track with a transition in the centre. Transitions required on the approaches depend on the dominant yard configuration and whether the turntable is accessed from one or both ends of a given turntable rotational position. A common rail table design is not suitable for triple gauge operations.



Typical layout
(yard layout - common rail on left)

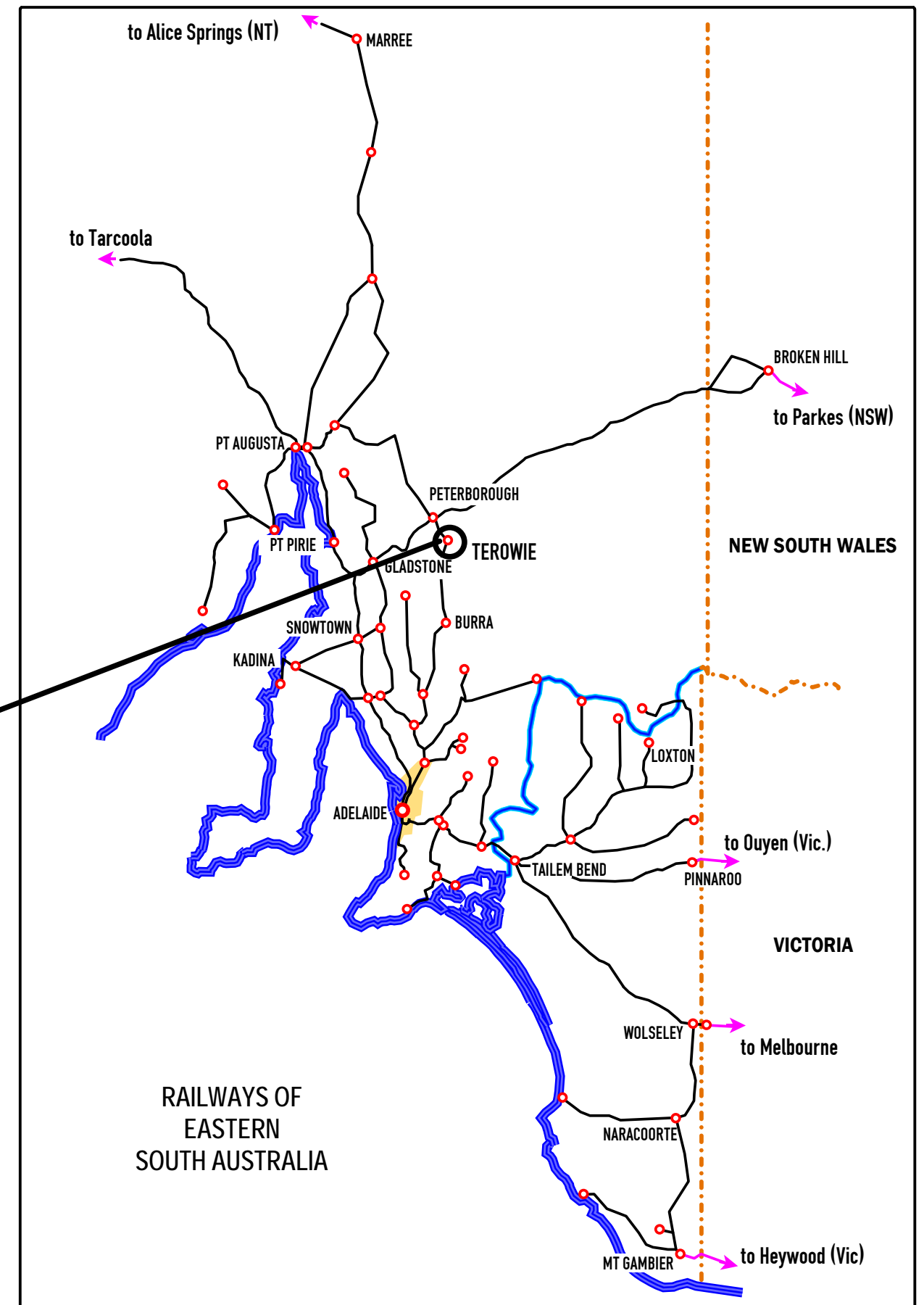
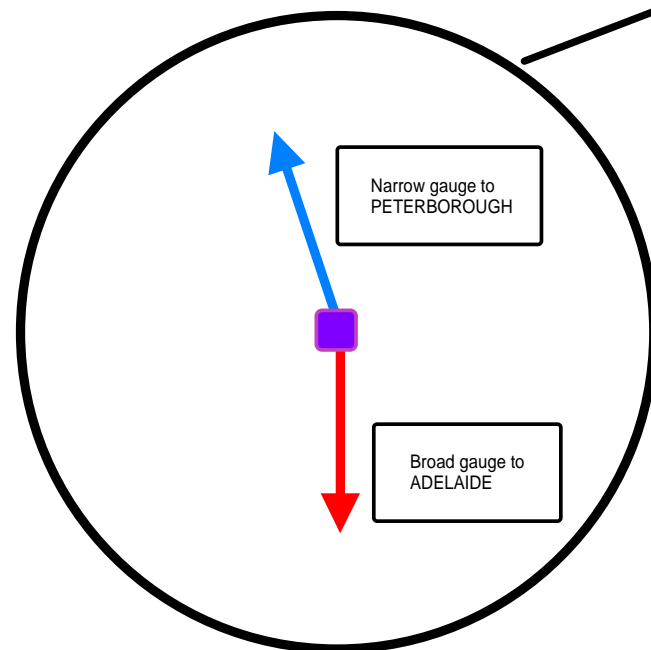
For illustration purposes some
photographs are from other
illustrations.

Historic Notes

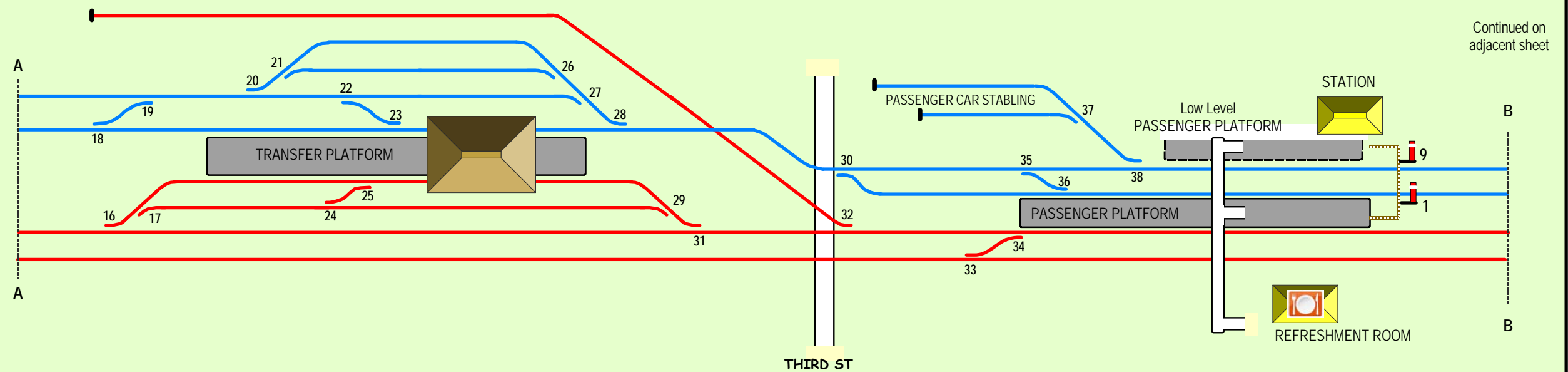
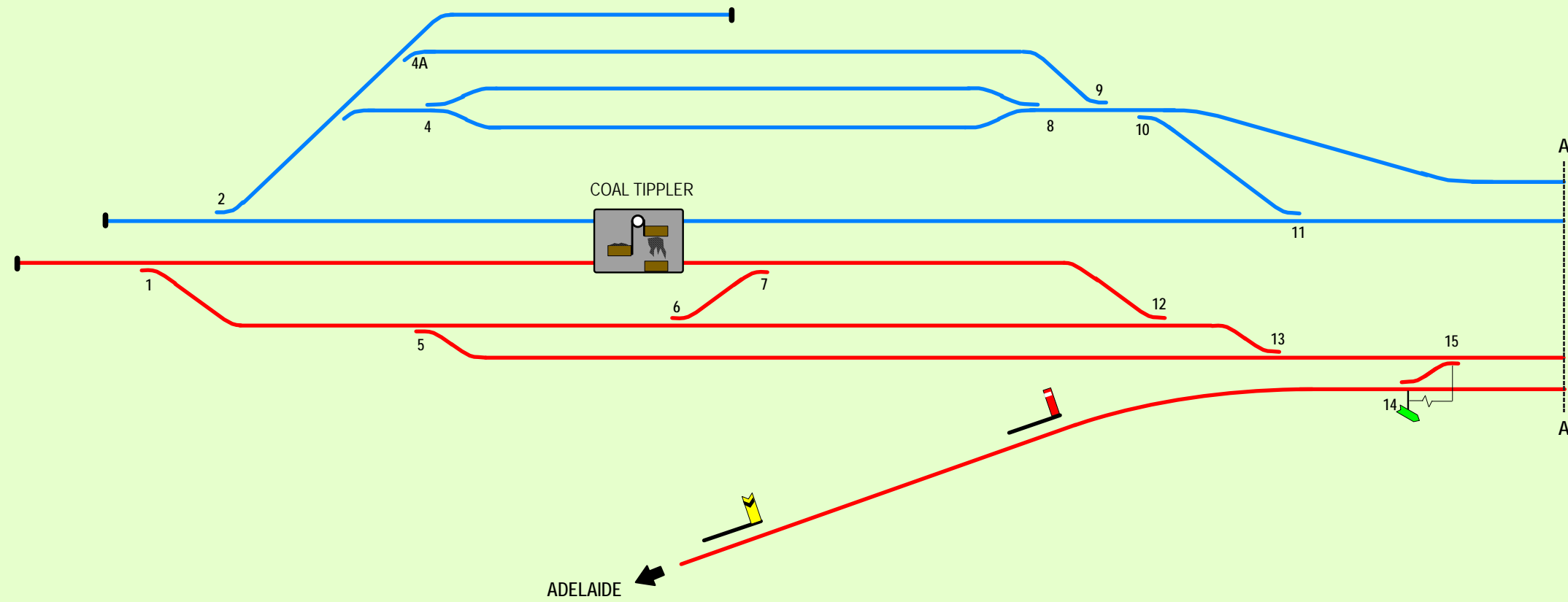
Terowie is the archetypal 'change-of gauge' station located without a centre of population and with a railway point where two lines built in opposite directions with different gauges simply met at a point on the map. Since there was little terminating traffic, almost everything that arrived, be it passengers, stock, machinery, parcels, mail and later coal, had to be trans-shipped. Historically the broad gauge from Adelaide had been extended from Burra to Terowie by 1880 and the narrow gauge was well on the way inland from Port Pirie reaching Peterborough (Petersburg) in 1881. Then in the same year it was extended south to make the Adelaide connection. It is curious, and as of the time probably political, that the broad gauge was not continued to Petersburg where there was a developing centre of activity, but ended at Terowie. The dual gauge status remained until 1970 when the broad gauge was extended to meet the new standard gauge as part of the east coast to west coast standardisation project, and this 90 year period represented the longest duration of a 'change-of-gauge' status of any station in Australia.

From 1917-1937, travellers from Western Australia travelled from Port Augusta via Quorn to their third change of train experience en-route to Adelaide, and during the second world war the transport northwards of materials and troops of the war effort all changed at Terowie. Then for over 10 years coal from Leigh Creek heading for Adelaide's power stations was all trans-shipped along with cattle from the inland.

Thus Terowie was the classic change-of-gauge station.

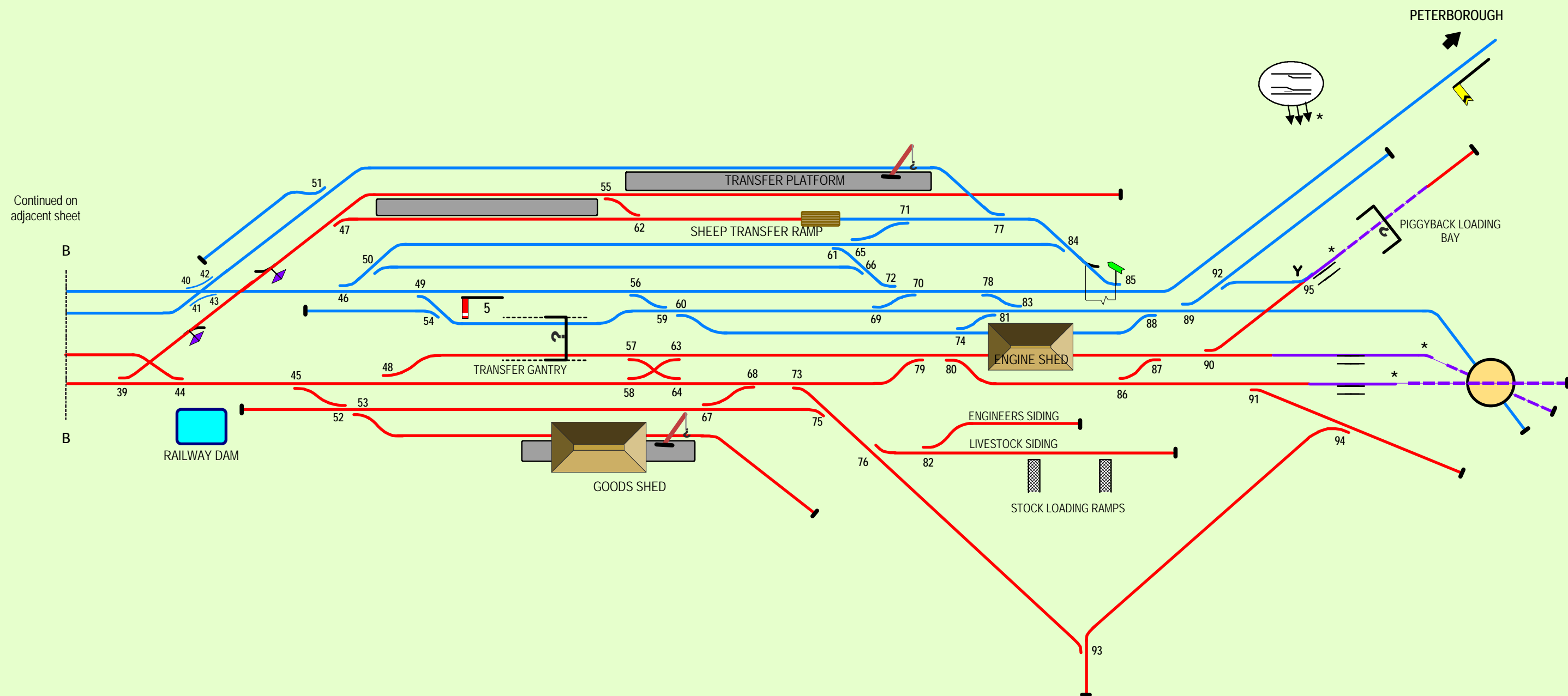


TEROWIE



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

TEROWIE (COAL TIPPLER - STATION)
1881 - 1970
Dual Gauge Era (b.g./ n.g.)



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

TEROWIE (NORTH YARD)
1881 - 1970
Dual Gauge Era (b.g./ n.g.)

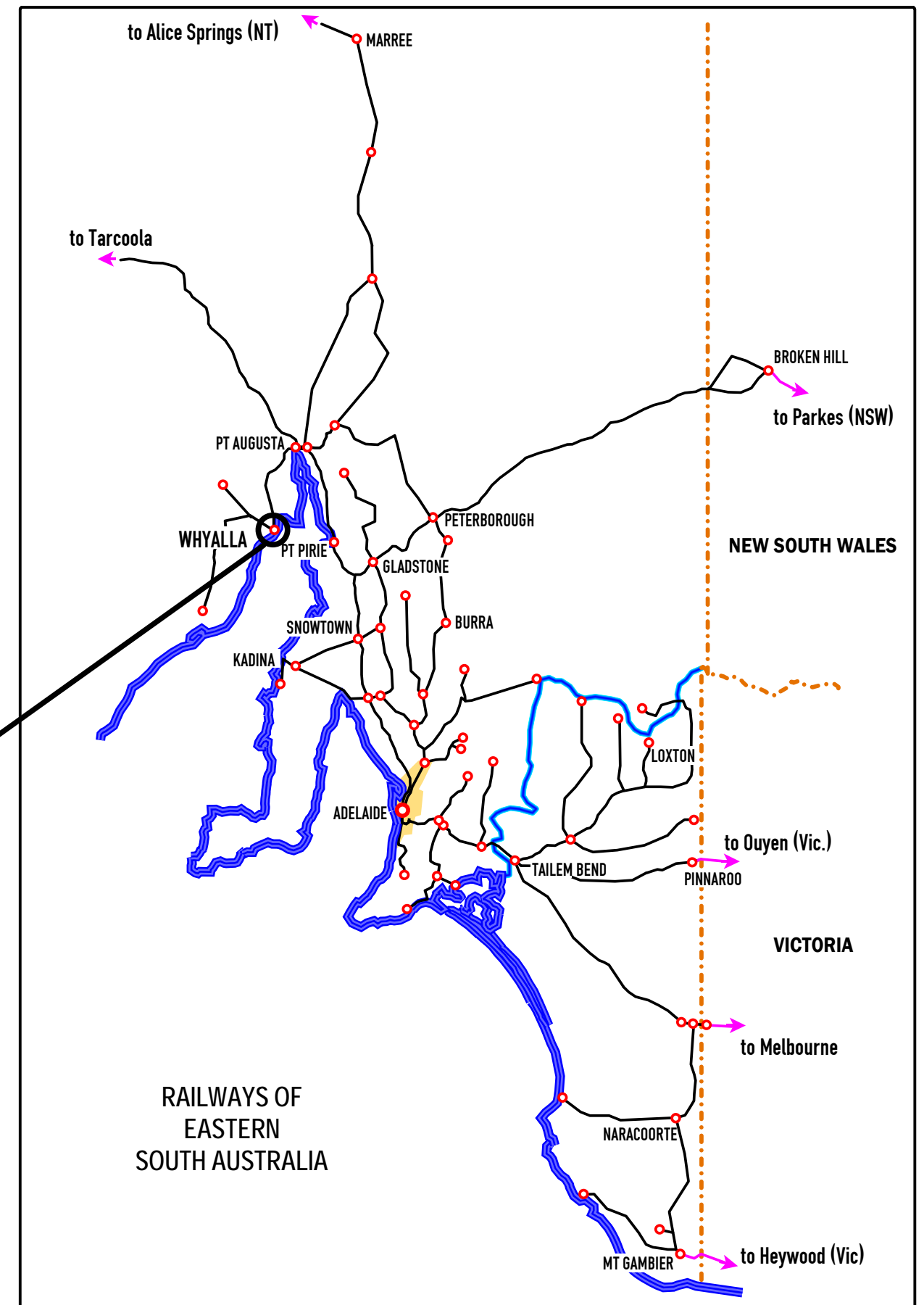
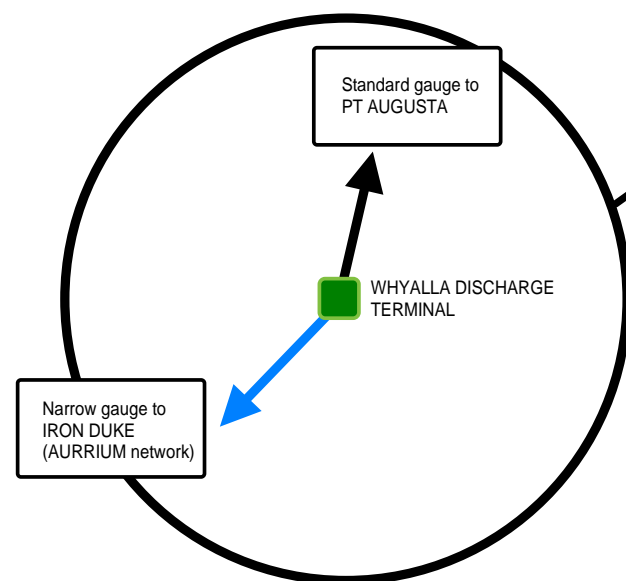
Historic Notes

The company BHP initiated a narrow gauge "tramway" (only the government could operate "railways") to transport iron ore from the Middleback ranges to Whyalla in 1901 and for the next 70 years it remained an isolated facility that expanded as required to service a variety of mining locations.

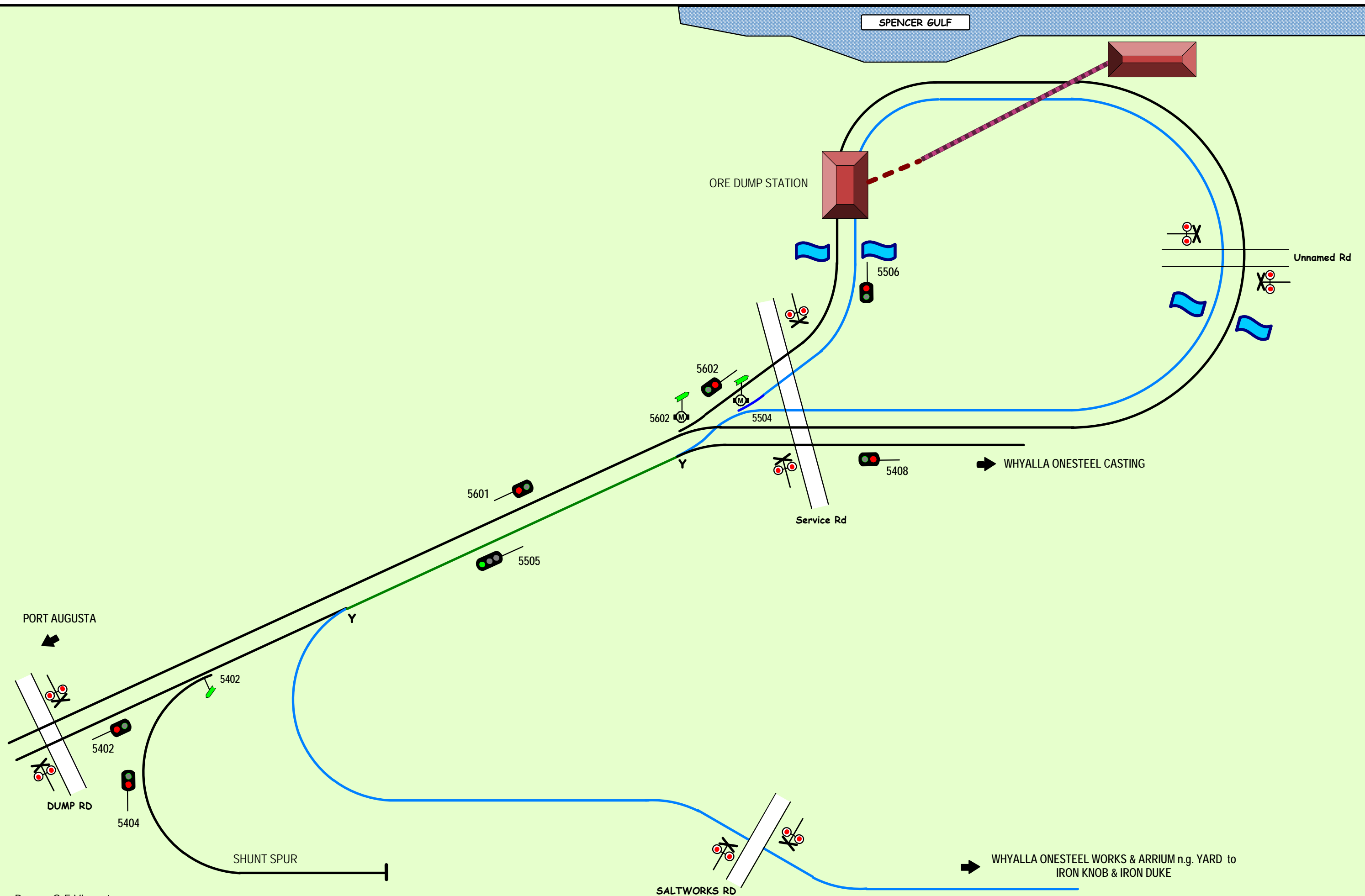
In 1972 a standard gauge branch line from Port Augusta was opened to Whyalla to assist in the transport of the steelworks products to the eastern states, but even then the two different gauge systems remained separate entities.

It was not until the 21st century that the company which had morphed into OneSteel and then into Arrium, changed company objectives and moved into mining at more remote South Australian locations. Coupled with the company objectives to ship its ore from a new unloading/loading facility at its private Whyalla Port, a new connection was built from each of the networks to reach a common (dual gauge) unloader.

So it was that in 2013 Whyalla became a dual gauge location after 4 decades being known as a site where two gauges existed, but always in separate yards.



PORT WHYALLA



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

Y -- Fixed point divergence of two gauges

WHYALLA STEELWORKS UNLOADER

2013 >>> Dual Gauge Era

SOUTH AUSTRALIA'S *MIXED GAUGE MUDDLE*



Wallaroo bg+sg turnout

SECTION - B MULTI GAUGE LINES in SA COUNTRY AREAS

Country lines	Era		Drawing
Bordertown - Serviceton			
Bordertown	1884 -	1924	1031
Wolseley	1884 -	1955	1032
Serviceton	1884	1898	1033
Port Augusta - Stirling North	1937 -	1955	
Port Augusta	1917 -	1957	1034
Stirling (1)	1937 -	1955	1035
Stirling North (2)	1955 -	1966	1036
Snowtown - Wallaroo	1982 -	1990	
Snowtown (2)	1982 -	1990	1038
Barunga Gap	1983 -	1990	1039
Bute	1984 -	1990	1039
Kadina	1982 -	1990	1039
Wallaroo	1982 -	1990	1040

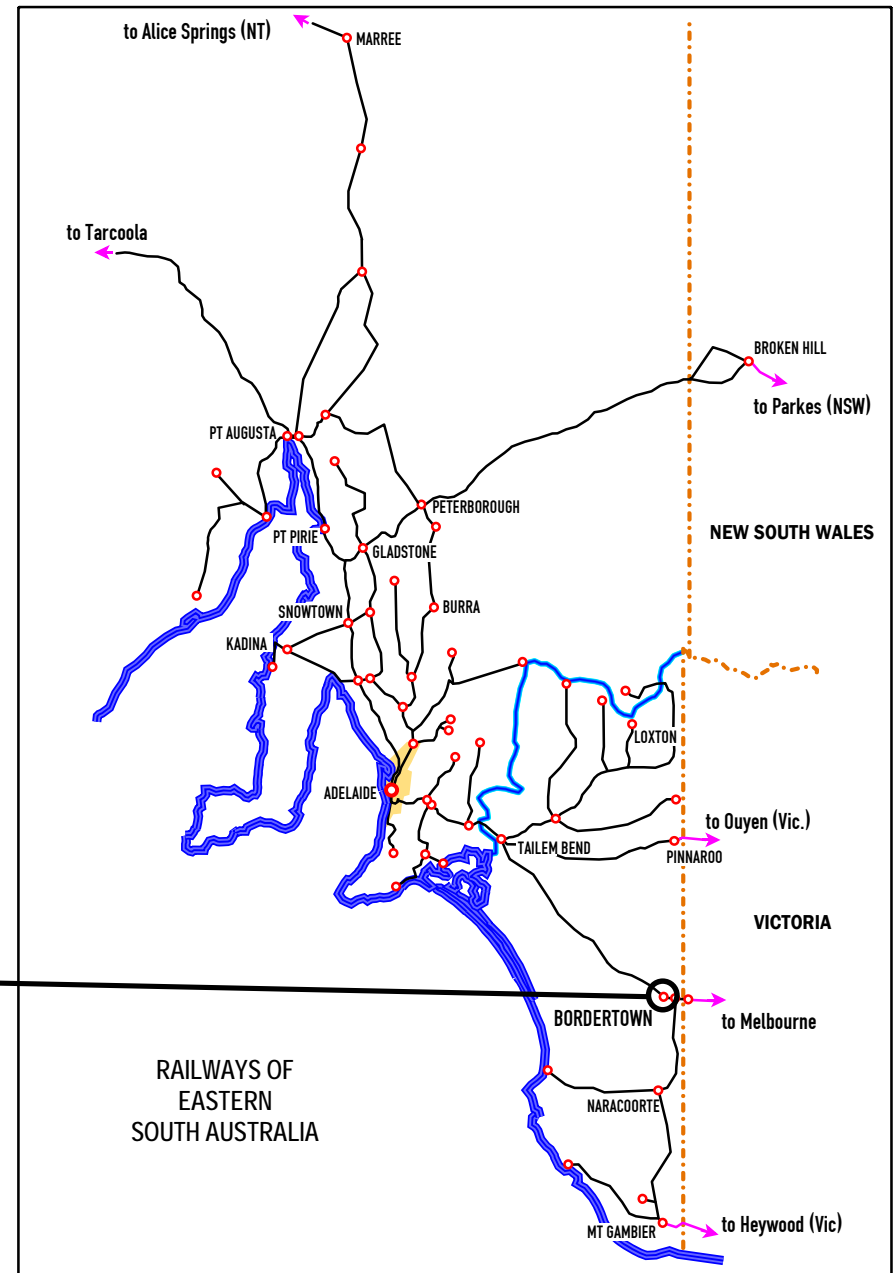
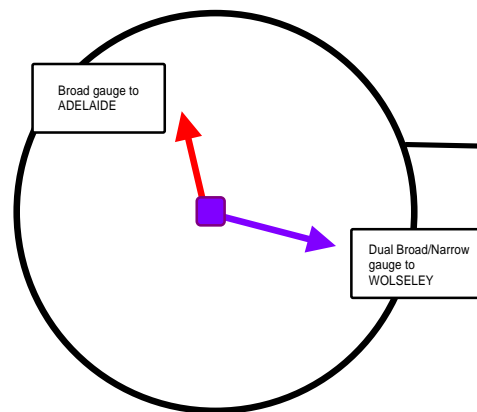
For other Country locations refer to
Section A - Multi Gauge Stations in Country SA

Historic Notes

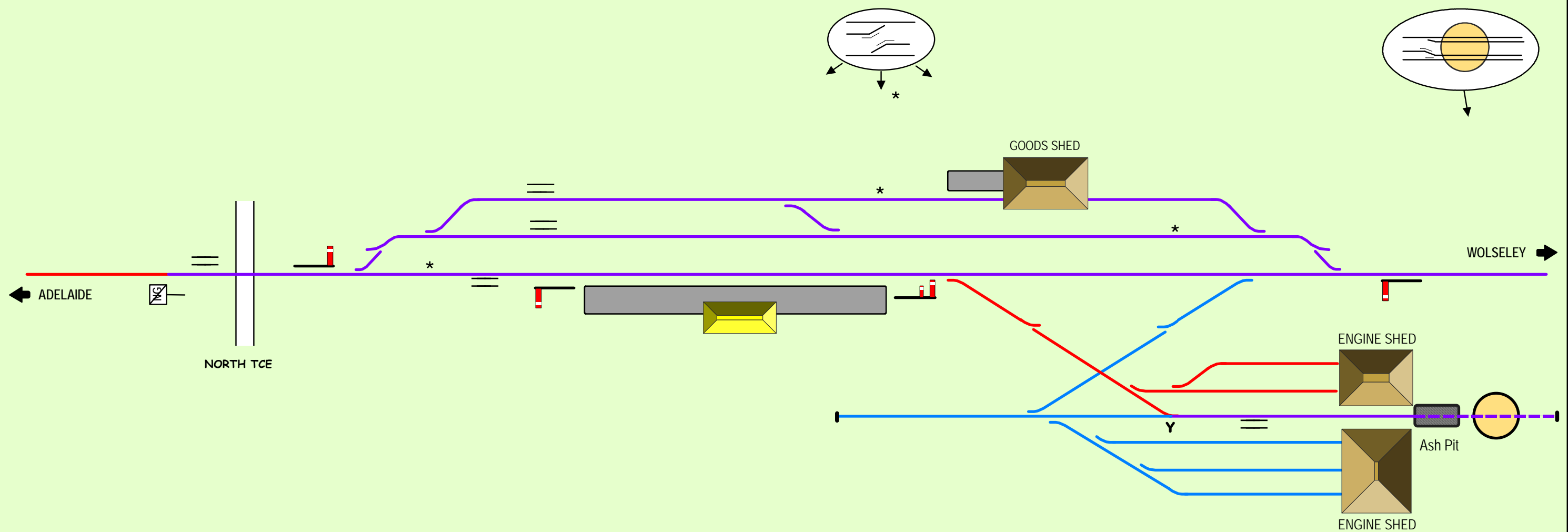
Bordertown became the northern terminal and locomotive servicing centre for the Kingston - Naracoorte - Wolseley - Bordertown narrow gauge line in 1883. But it was only four years later in 1887 that the 'Intercolonial' broad gauge line reached Bordertown and pressed on to Serviceton where it interconnected with the Victorian Railways to provide Australia's first single gauge connection between two capital cities.

In this situation Bordertown's dual gauge status was more coincidental than any meaningful point of transfer between the two different gauge lines. Indeed, it was not long before Wolseley 8 miles to the east, became the primary transfer point for freight and passengers to change from broad gauge mainline trains to the narrow gauge of the South East system. Surprisingly perhaps, Bordertown continued to host the narrow gauge locomotive servicing tasks with the narrow gauge element of the dual gauge line to Wolseley providing little more than a locomotive transfer link.

This arrangement continued until 1924 when the narrow gauge was closed and the servicing tasks moved to Wolseley.



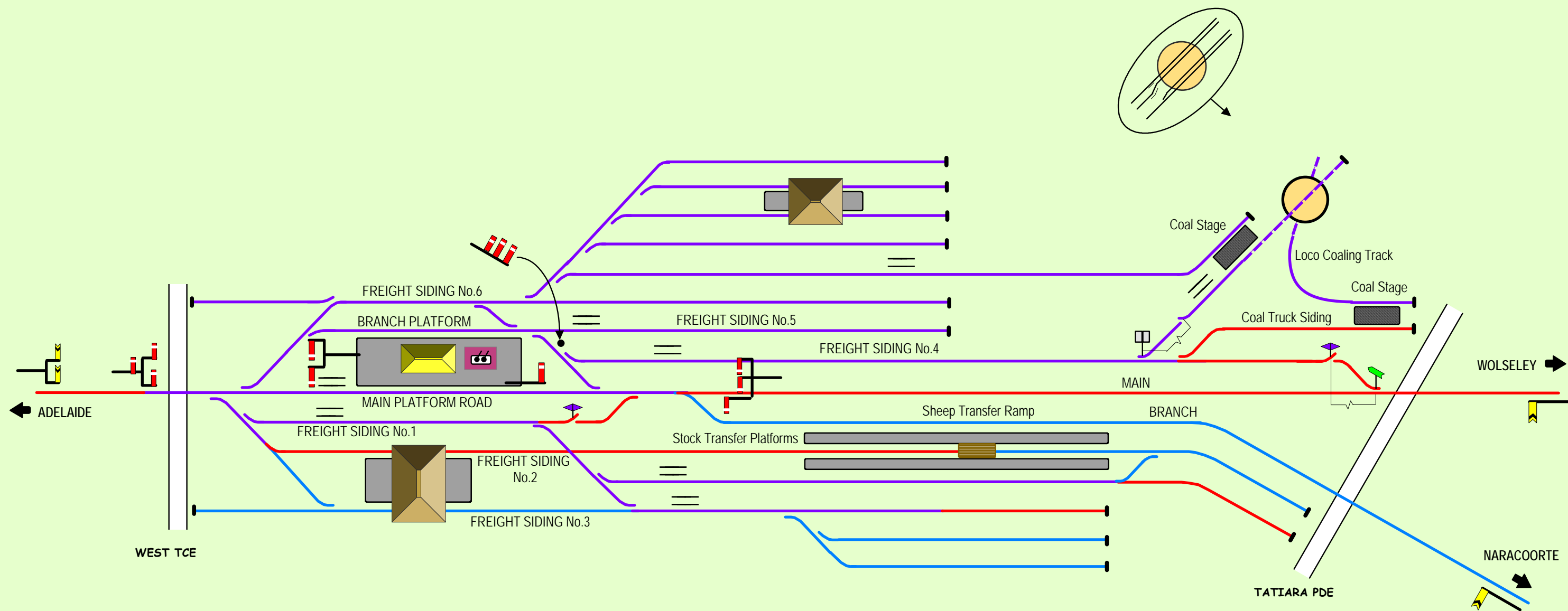
BORDERTOWN



Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

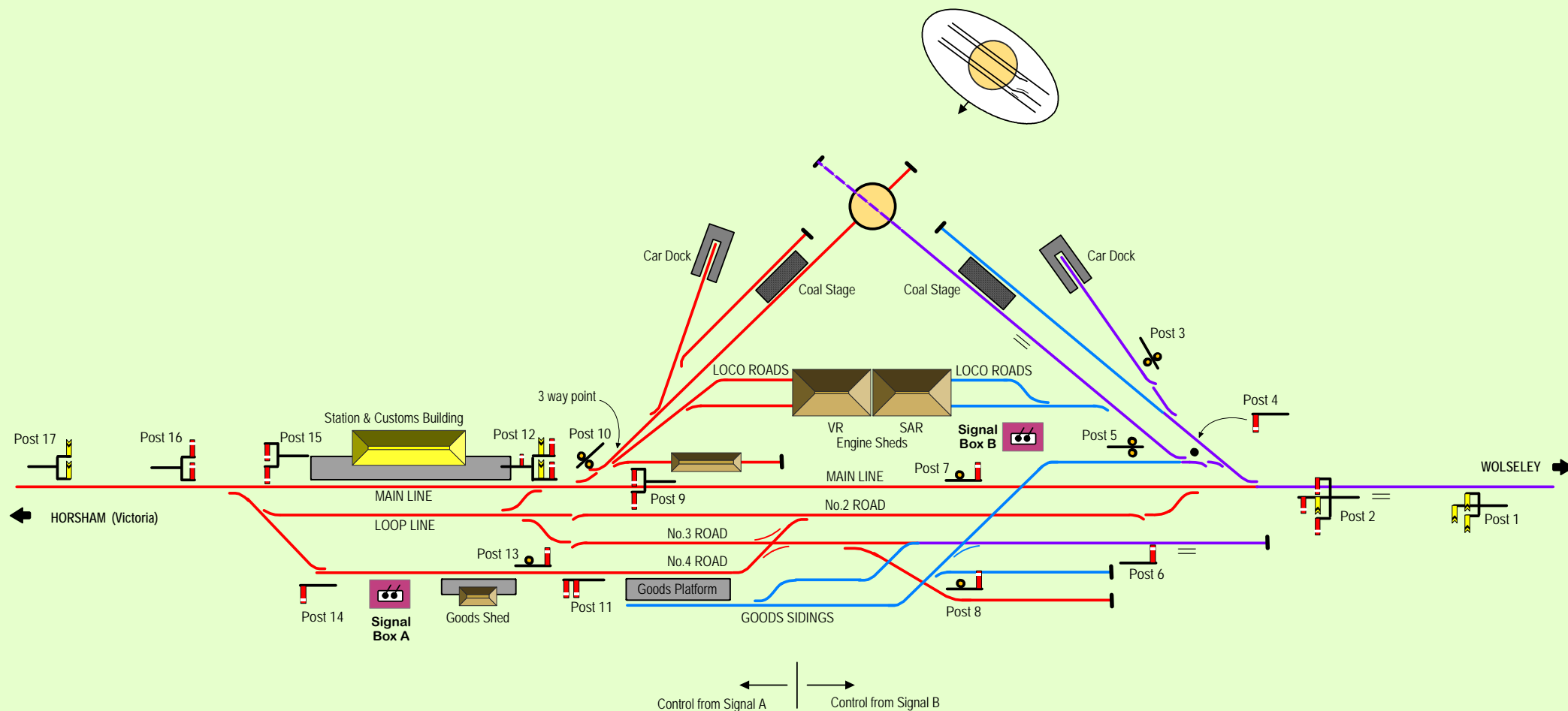
BORDERTOWN
1884 - 1917
Dual Gauge Era (b.g./ n.g.)



* Because Wolseley was a dual gauge station for such an extended period the layout changed in detail many times. As a representative period, this diagram is indicative of the layout in the 1930-50 period whilst it was a Change-of-gauge station for the narrow gauge branch to Mount Gambier

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

WOLSELEY
1884 - 1955*
Dual Gauge Era (b.g./ n.g.)



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

In the earliest literature this station was simply referred to as "Joint Station". The station was constructed by VR and as a station located in Victoria, it is drawn with Melbourne as the datum (on the left).

* This drawing depicts the short era when the Narrow Gauge from Wolsley and Kingston SE, and the Broad gauge from Wolsley and Adelaide, crossed the border as a Dual Gauge line. to meet the Victorian Broad Gauge. Subsequently, Wolsley became the prime Change-of-gauge station.

SERVICETON (Victoria) #

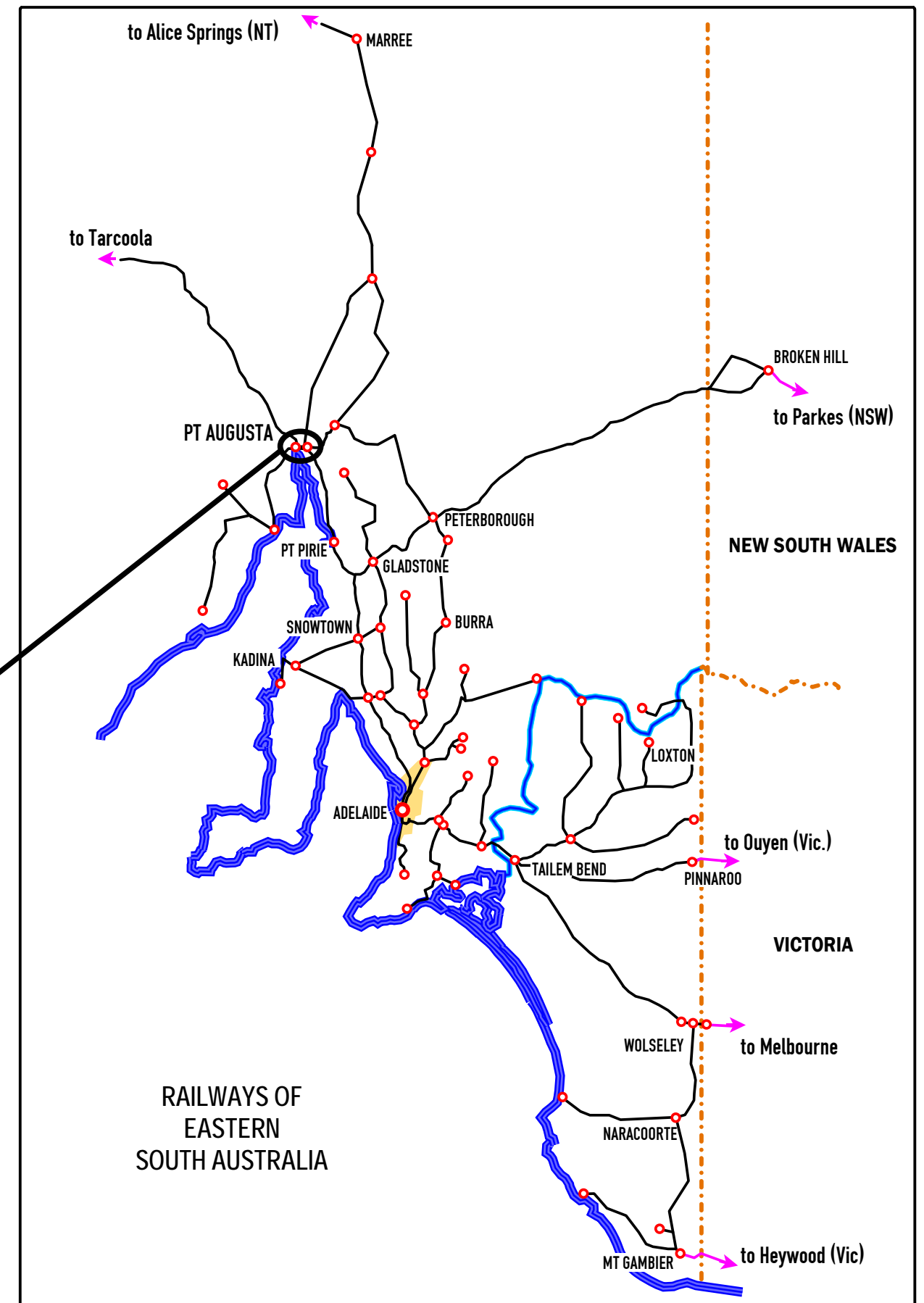
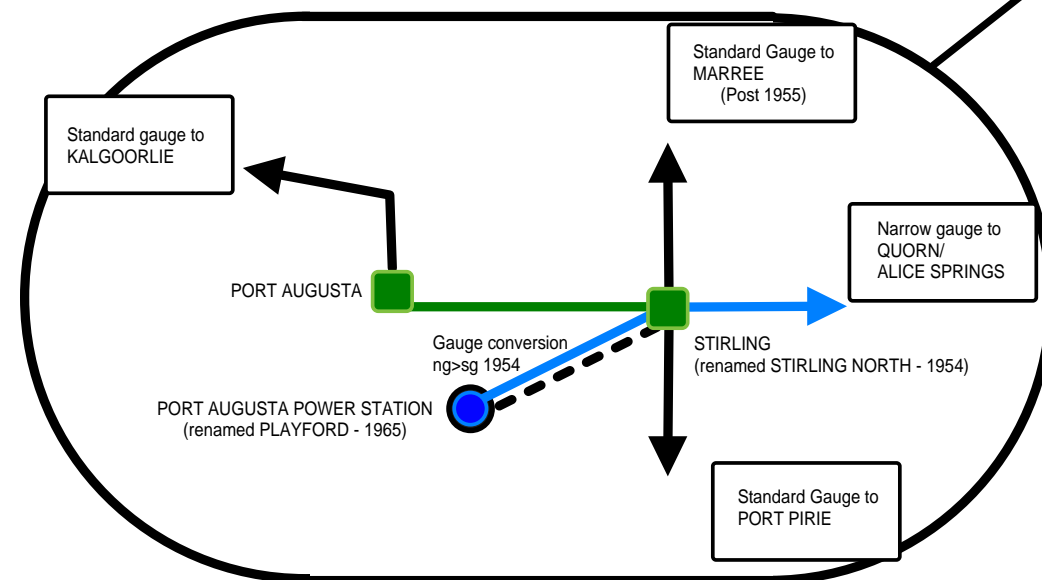
1884 - 1898

Dual Gauge Era (b.g./ n.g.)

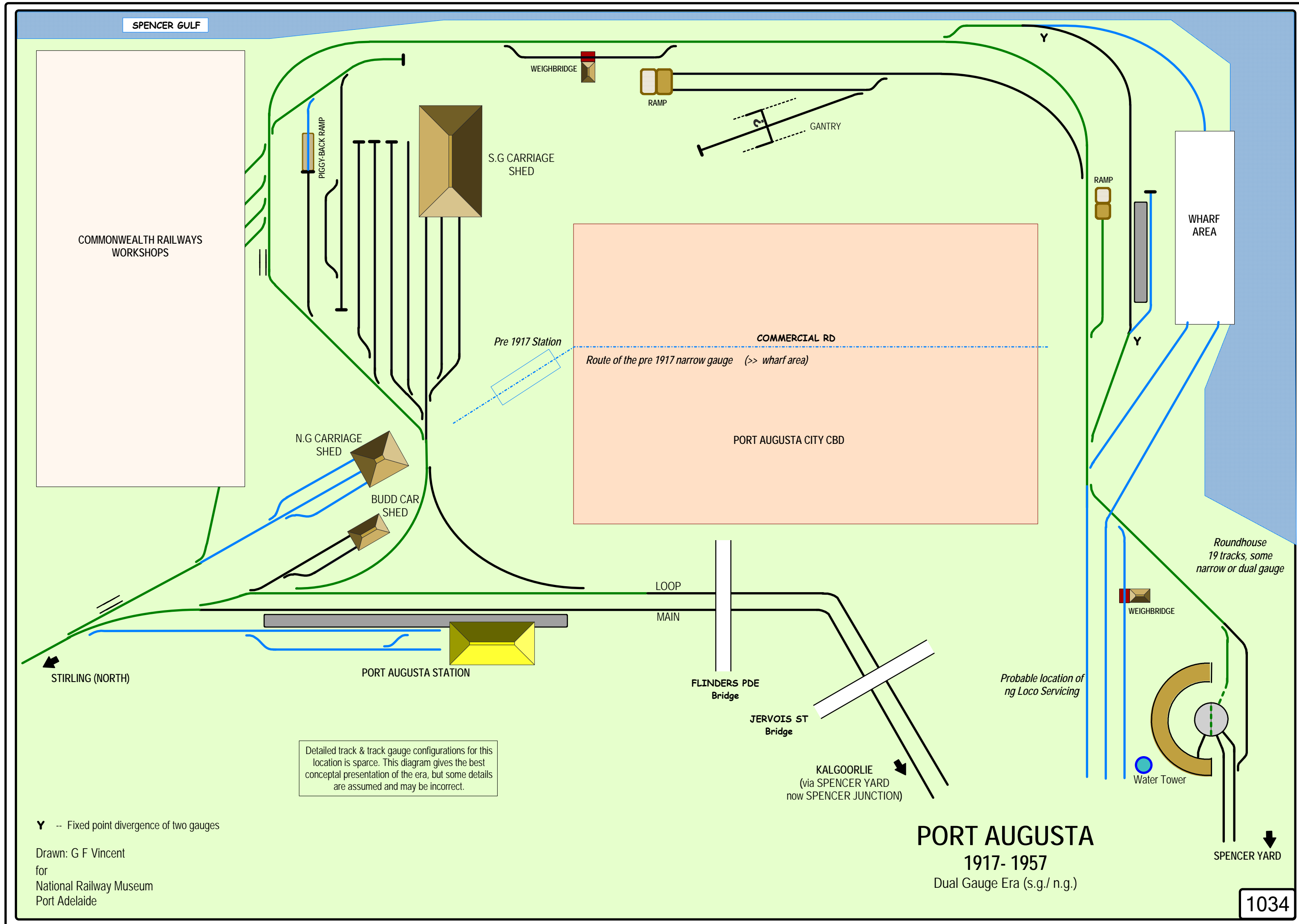
Historic Notes

Port Augusta was the port and starting point for a narrow gauge line in 1879 to Quorn which then extended progressively south to Peterborough and Terowie, and north to Oodnadatta (and much later to Alice Springs). For 33 years it was the centre of operations for this network (along with Peterborough). In 1917 the great project providing the Trans Australian railway, completed a standard gauge line from Kalgoorlie (WA) to Port Augusta and created a dual gauge environment. This demanded a major change to the local infrastructure with maintenance and repair facilities for the standard gauge operations. The existing station was replaced and new workshops built. Passengers transferred to the narrow gauge travelling to Adelaide via Quorn and Terowie (a second change of gauge. Stirling was subsequently established as a junction for Leigh Creek coal trains to reach the Power Station. 1937 changed the configuration when the standard gauge was extended south to Port Pirie and Stirling became a dual gauge junction. The mid 1950 construction of a standard gauge route to Marree which branched north at Stirling (renamed Stirling North) reduced the value of the narrow connection into 'The Port' to a service connection for Quorn and finally it was removed altogether in the late 1950s leaving the whole area to the domain of standard gauge.

Much later (2001) narrow gauge returned to the route in the form of a second track paralleling the main line as an extension of the Pichi Richi Preservation Society's tourist train route from Quorn.



PORT AUGUSTA - STIRLING (NORTH)



SPENCER GULF

COMMONWEALTH RAILWAYS
WORKSHOPS

PIGGY-BACK RAMP

S.G. CARRIAGE
SHED

WEIGHBRIDGE

RAMP

GANTRY

RAMP

WHARF
AREA

Pre 1917 Station

COMMERCIAL RD

Route of the pre 1917 narrow gauge (>> wharf area)

PORT AUGUSTA CITY CBD

N.G. CARRIAGE
SHED

BUDD CAR
SHED

LOOP

MAIN

STIRLING (NORTH)

PORT AUGUSTA STATION

FLINDERS PDE
Bridge

JERVOIS ST
Bridge

KALGOORLIE
(via SPENCER YARD
now SPENCER JUNCTION)

Probable location of
ng Loco Servicing

WEIGHBRIDGE

Water Tower

Roundhouse
19 tracks, some
narrow or dual gauge

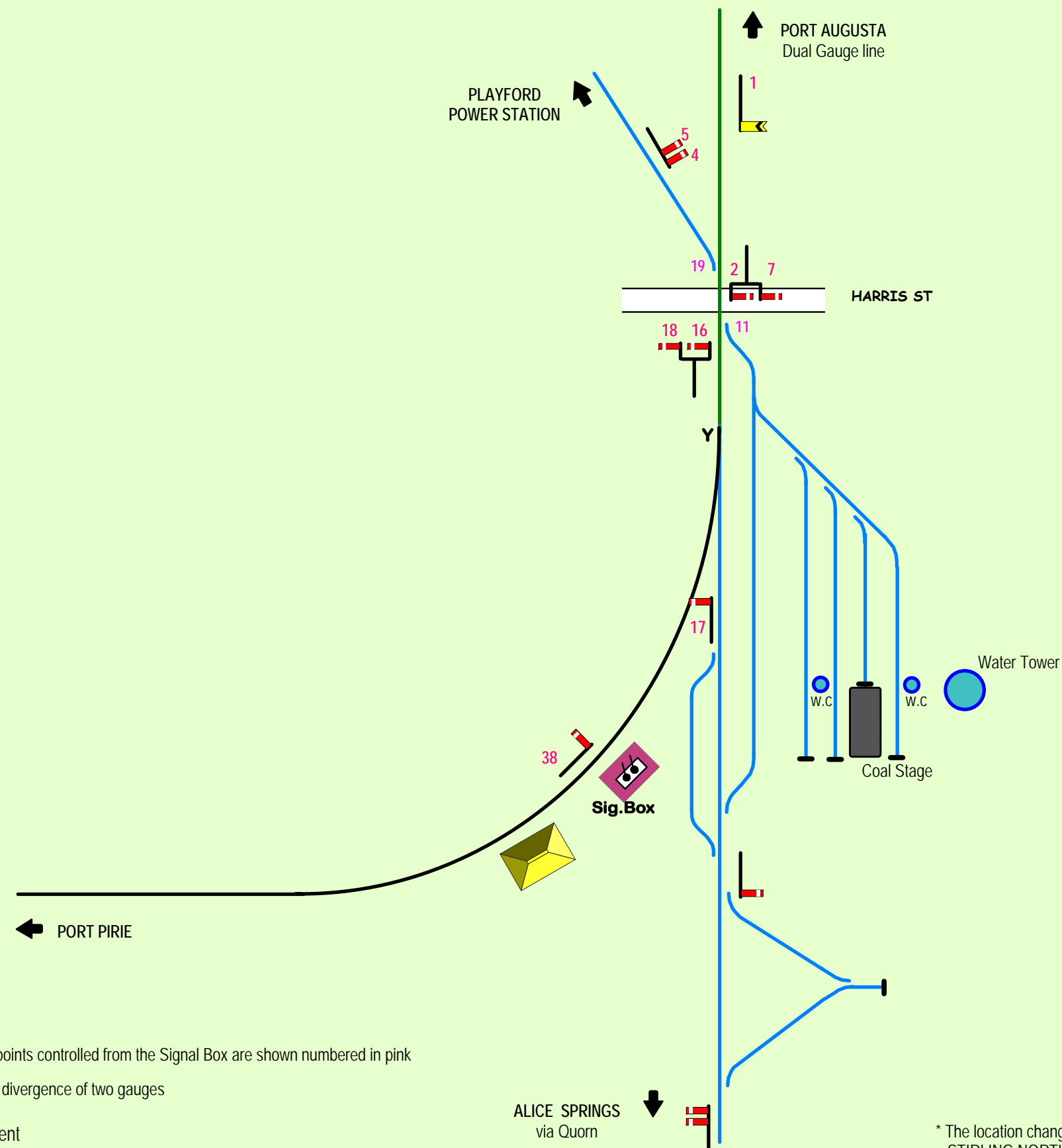
SPENCER YARD

Detailed track & track gauge configurations for this
location is sparse. This diagram gives the best
conceptual presentation of the era, but some details
are assumed and may be incorrect.

Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

PORT AUGUSTA
1917- 1957
Dual Gauge Era (s.g./ n.g.)



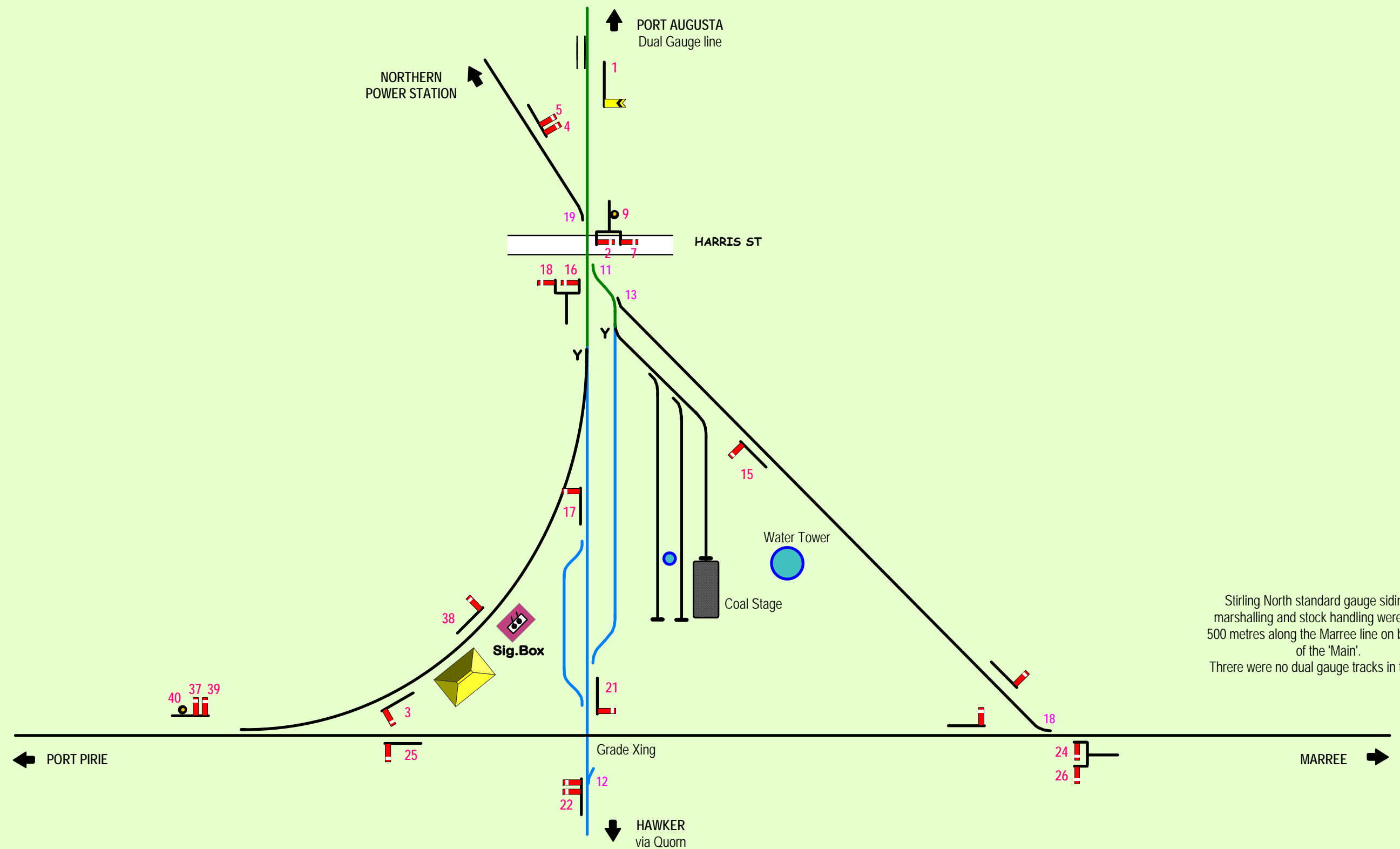
34 - Signals and points controlled from the Signal Box are shown numbered in pink

Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

* The location changed name to
STIRLING NORTH in the mid 1950s

STIRLING*
1937- 1955
Dual Gauge Era (n.g./ s.g.)



Stirling North standard gauge sidings for marshalling and stock handling were located 500 metres along the Marree line on both sides of the 'Main'. There were no dual gauge tracks in that area.

34 - Signals and points controlled from the Signal Box are shown numbered in pink

Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

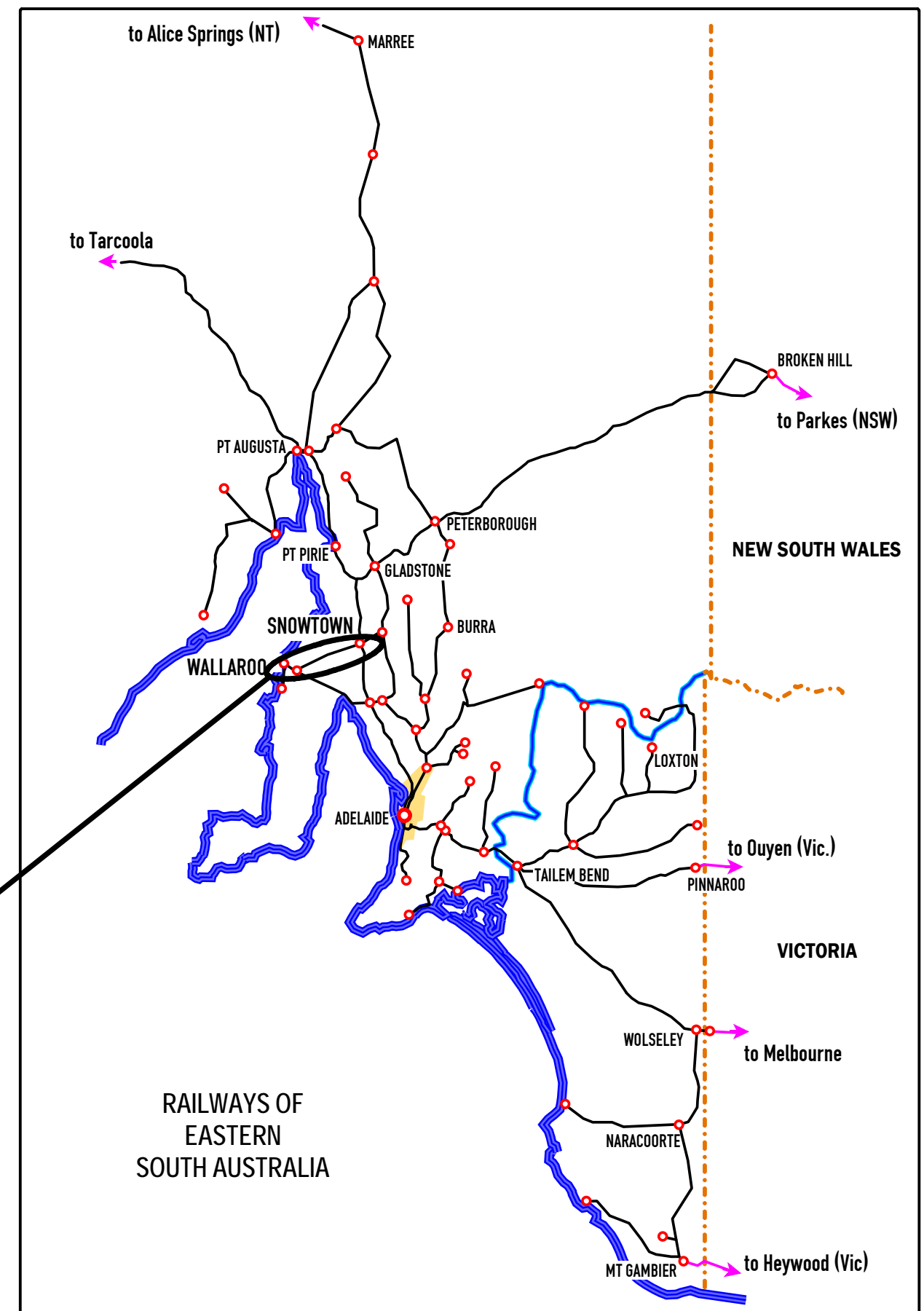
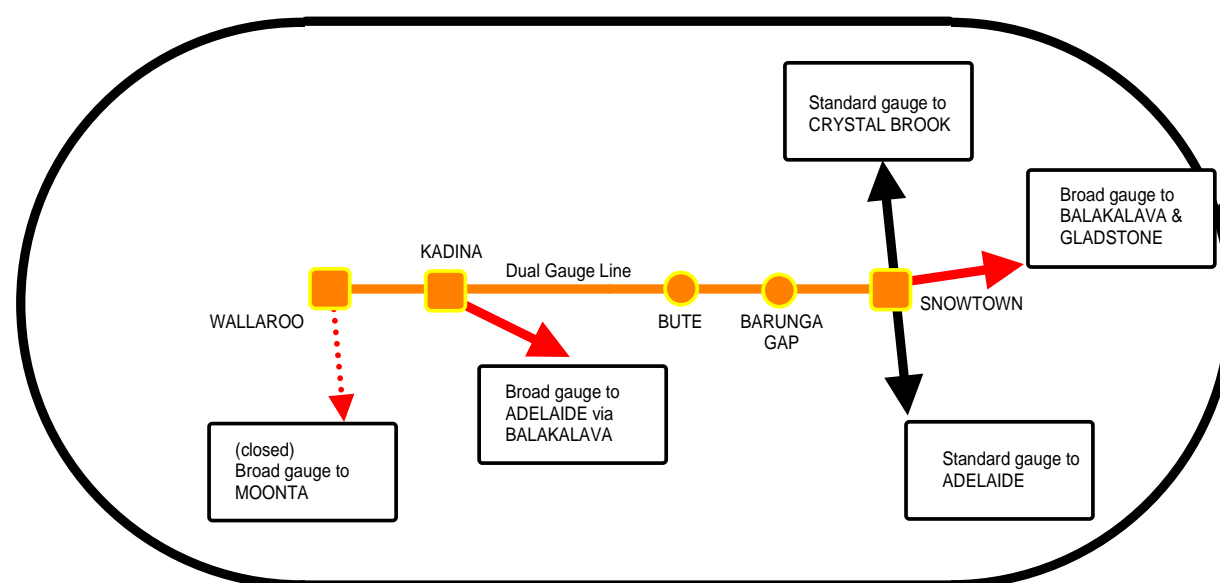
STIRLING NORTH
1955- 1966
Dual Gauge Era (n.g./ s.g.)

Historic Notes

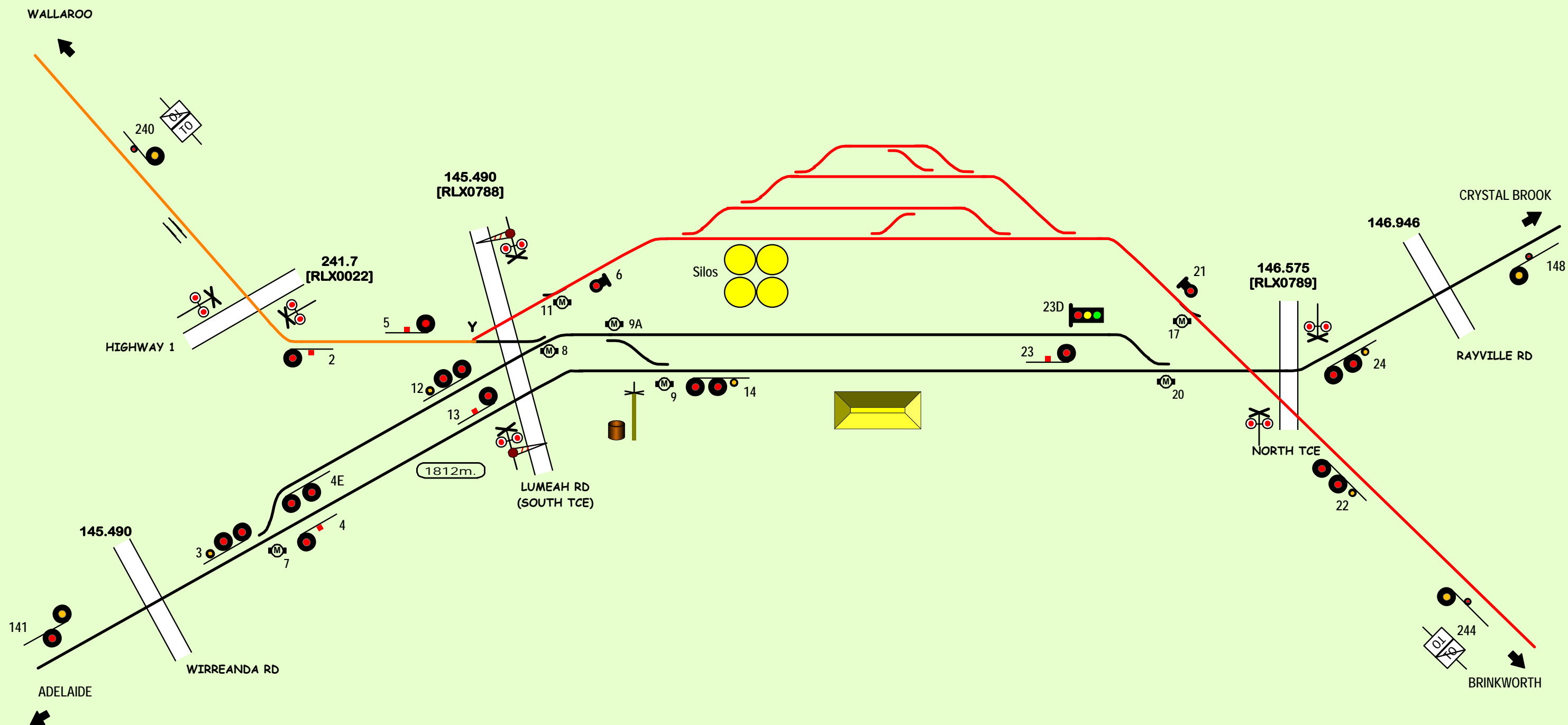
The line from Snowtown to Kadina and Wallaroo was initially narrow gauge as part of the Western System from 1879 to 1927. Then along with the rest of that system it was converted to broad gauge and was used primarily to transport grain from the farming areas of the Mid North to the shipping port at Wallaroo. Its east-west connection through Snowtown to Brinkworth and the Gladstone line made this significant link in the marketing chain for South Australian growers.

In 1982 the north-south line from Adelaide to Port Pirie was converted to standard gauge to give Adelaide direct access to the national standard gauge network (diverted from Port Pirie to Crystal Brook in the process) and this line passed through Snowtown. Decision makers decided to retain the broad gauge 'farm-to-port' line and to give standard gauge access to Wallaroo as well. Accordingly the Snowtown-Wallaroo line was converted to dual gauge encompassing Kadina, Bute and Barunga Gap in the process. However by 1990 the Snowtown to Gladstone line had seen its last broad gauge train, and without a feed for the grain traffic the dual gauge line fell into disuse.

Tourist operators used the broad gauge from Wallaroo to Bute from 1994 to 2007 before the line was abandoned.



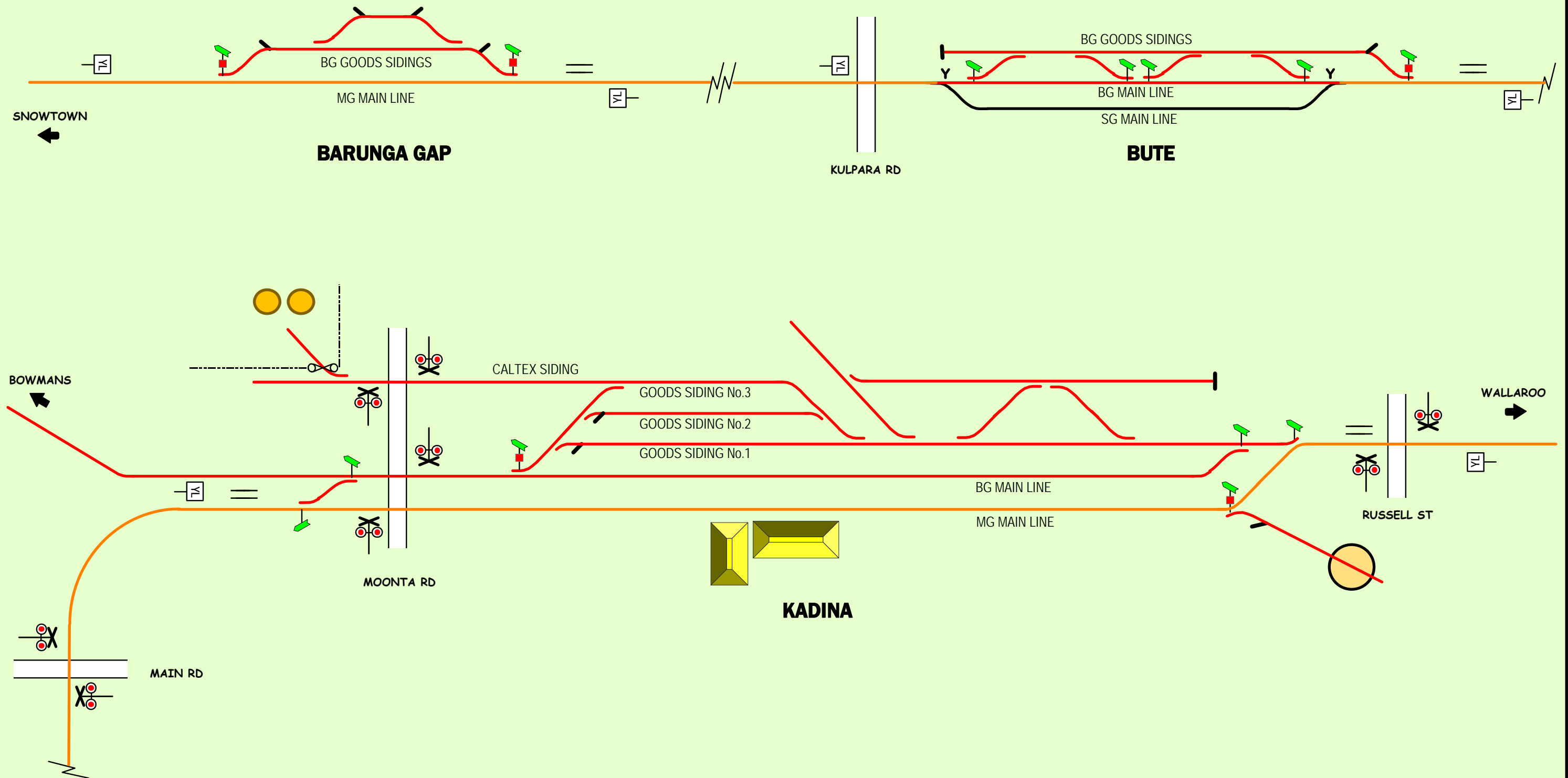
SNOWTOWN - WALLAROO line



Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

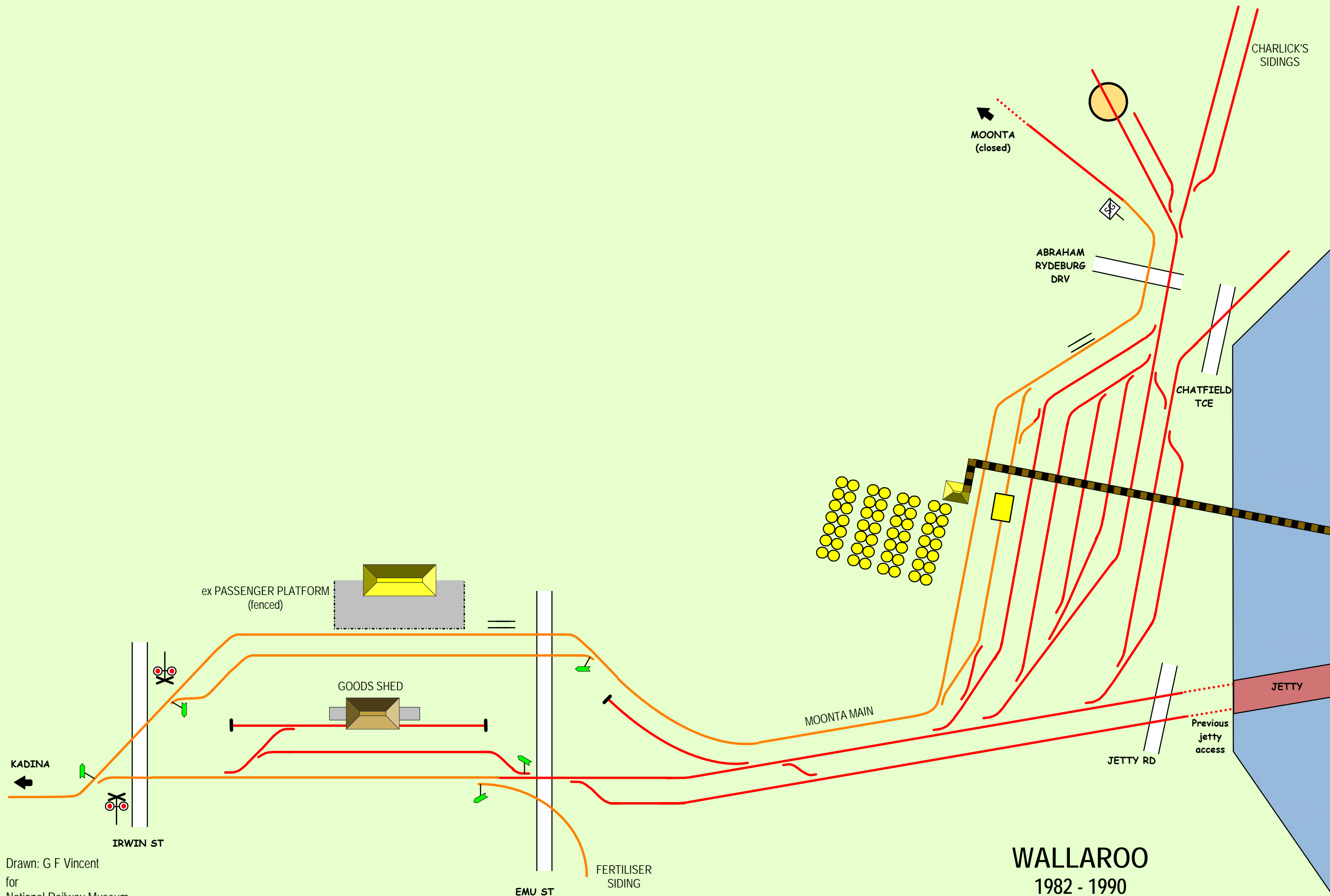
SNOWTOWN
1982 - 1990
Dual Gauge Era (b.g./ s.g.)



Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

BARUNGA GAP - BUTE - KADINA
SNOWTOWN - WALLAROO LINE 1982 - 1990
Dual Gauge Era (b.g./ s.g.)



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

WALLAROO
1982 - 1990
Dual Gauge Era (b.g./ s.g.)

SOUTH AUSTRALIA'S ***MIXED GAUGE MUDDLE***



Dual Gauge at Dry Creek MPC

SECTION - C MULTI GAUGE STATIONS in ADELAIDE METROPOLITAN AREAS

Metropolitan locations	Era			Drawing
Adelaide Rail Passenger Term.	1984	-	2002	1051
Dry Creek MPC	1982	-	>>>	1052
Dry Creek South (1)	1982	-	2001	1053
Dry Creek South (2)	2001	-	>>>	1054
Islington Freight Centre (AFT)	1982	-	1995	1055
Mile End Freight	1984	-	1995	1056
Port Adelaide Flat	1982	-	>>>	1057

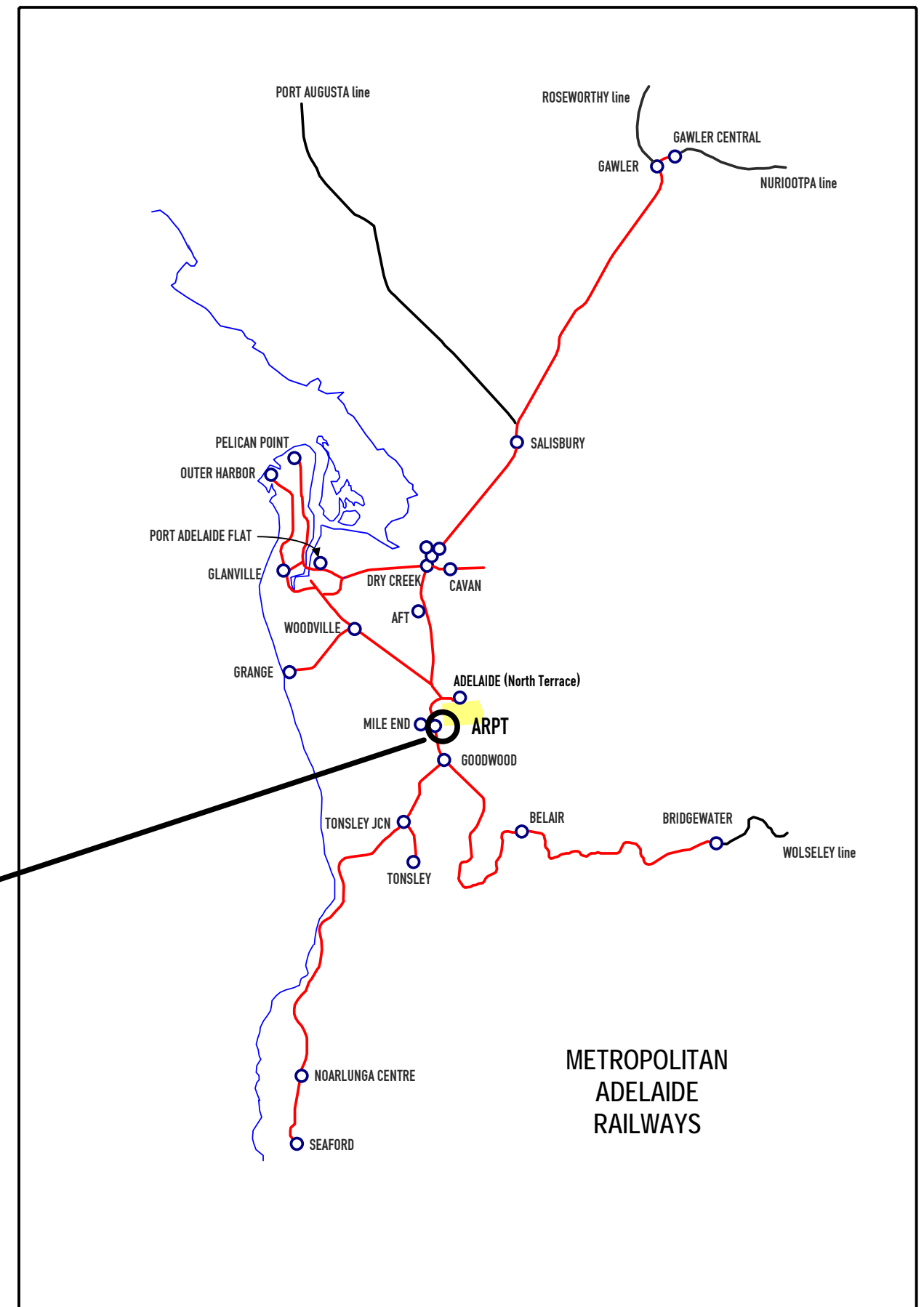
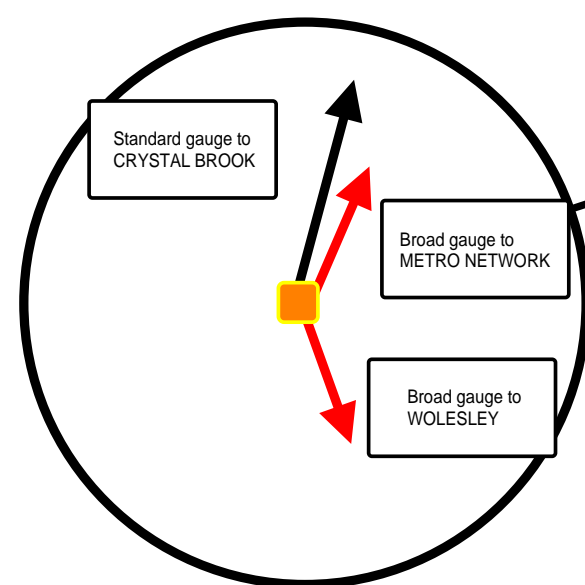
For other Metropolitan locations refer to
Section D - Multi Gauge Lines in Metropolitan Adelaide

Historic Notes

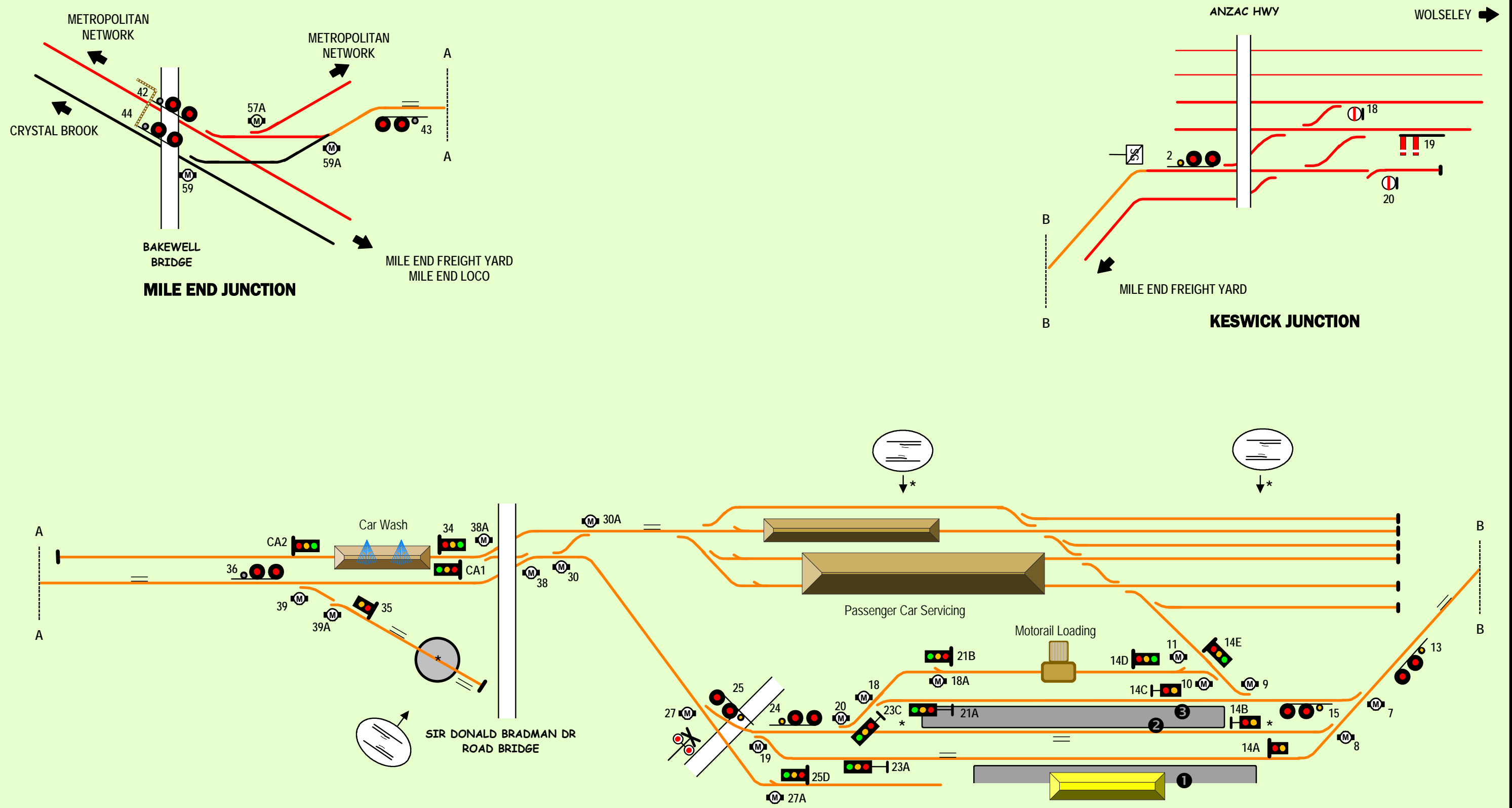
Adelaide Rail Passenger Terminal was built in 1984 as part of the standard gauge extension from Crystal Brook into Adelaide and the consequent need to accommodate interstate trains of lengths greater than could be accepted in the Adelaide North terrace station. Non-metropolitan passenger services were then centred at Keswick for both standard gauge interstate trains and broad gauge intrastate trains.

In 1995 the mainline to Melbourne was converted to standard gauge.

With no remaining regular broad gauge services to accommodate, the only use of these rails was the occasional charter train, and later around 2002 (without any fanfare), the last broad gauge access at the northern end was cut during some track reconfiguration.



ADELAIDE RAIL PASSENGER TERMINAL



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

ADELAIDE RAIL PASSENGER TERMINAL
1984-1996 (2002)*
Dual Gauge Era (b.g./ s.g.)

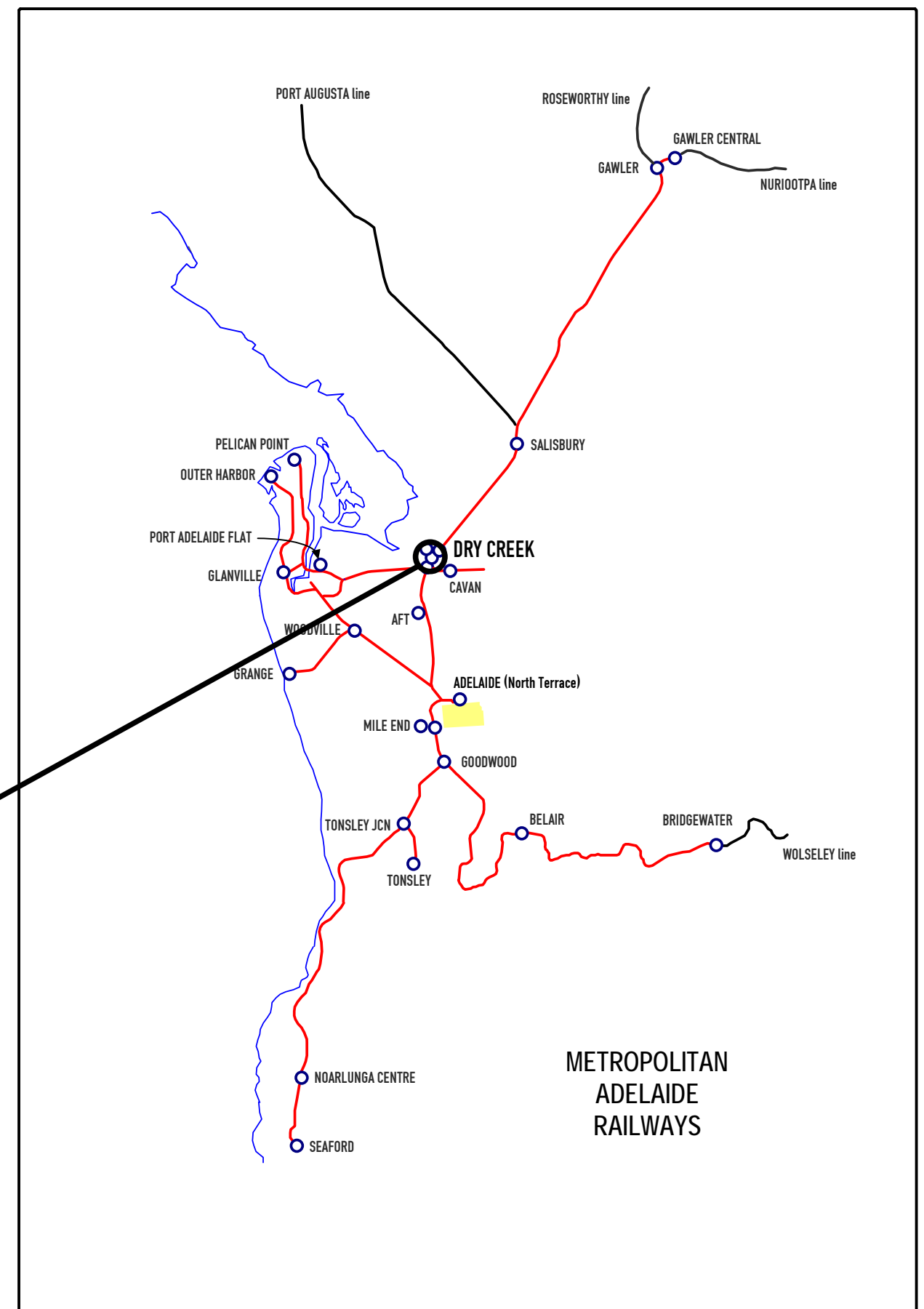
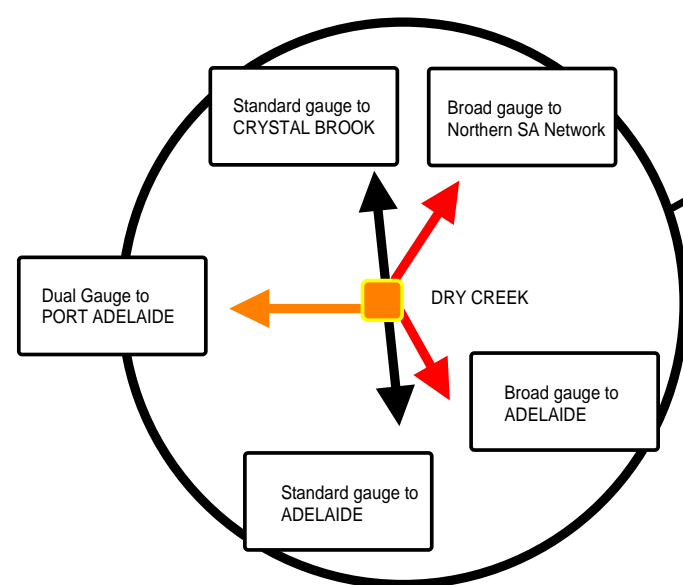
Historic Notes

Dry Creek has been a junction from the beginning of railways in the Adelaide area, with the main north line to Gawler branching west towards Port Adelaide and a little later, a branch to the east through Cavan and Pooraka to Northfield (and initially on to the Stockade). It naturally developed marshalling facilities.

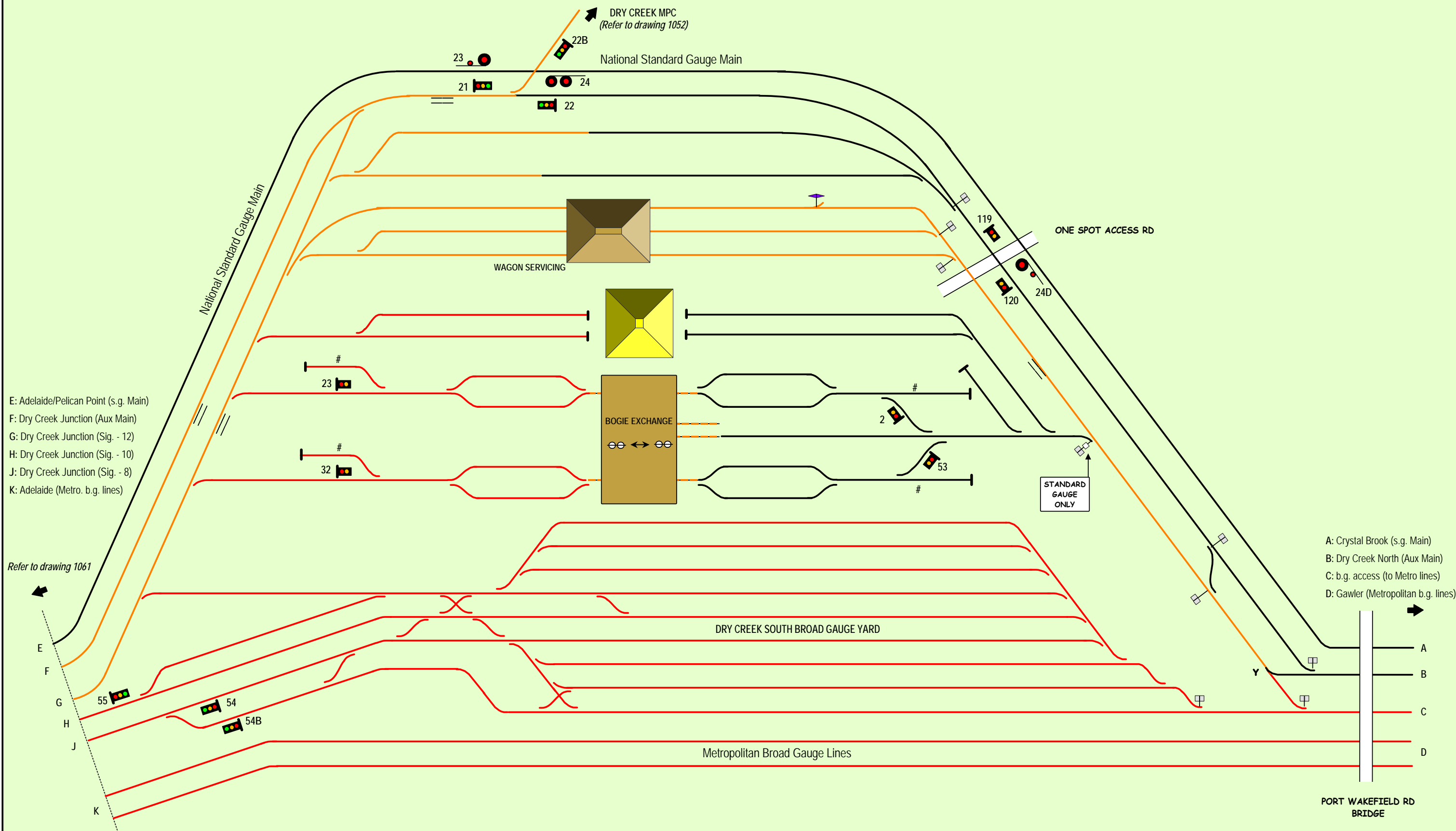
In 1982 the standard gauge from Crystal Brook reached Dry Creek (and on in 1984 as a dual gauge to Port Adelaide) and the area developed to provide new facilities.

Dry Creek South yard accommodated a dual gauge wagon servicing depot and later a bogie exchange facility was commissioned to permit through movement of loaded wagons from Melbourne (b.g.) to Perth (s.g.). This facility remained in service until 1995 when the line to Melbourne was standardised.

Off to the western side of the main (s.g.) line a Motive Power Centre was built replacing the locomotive facilities at Mile End, providing servicing for power units of both gauges.

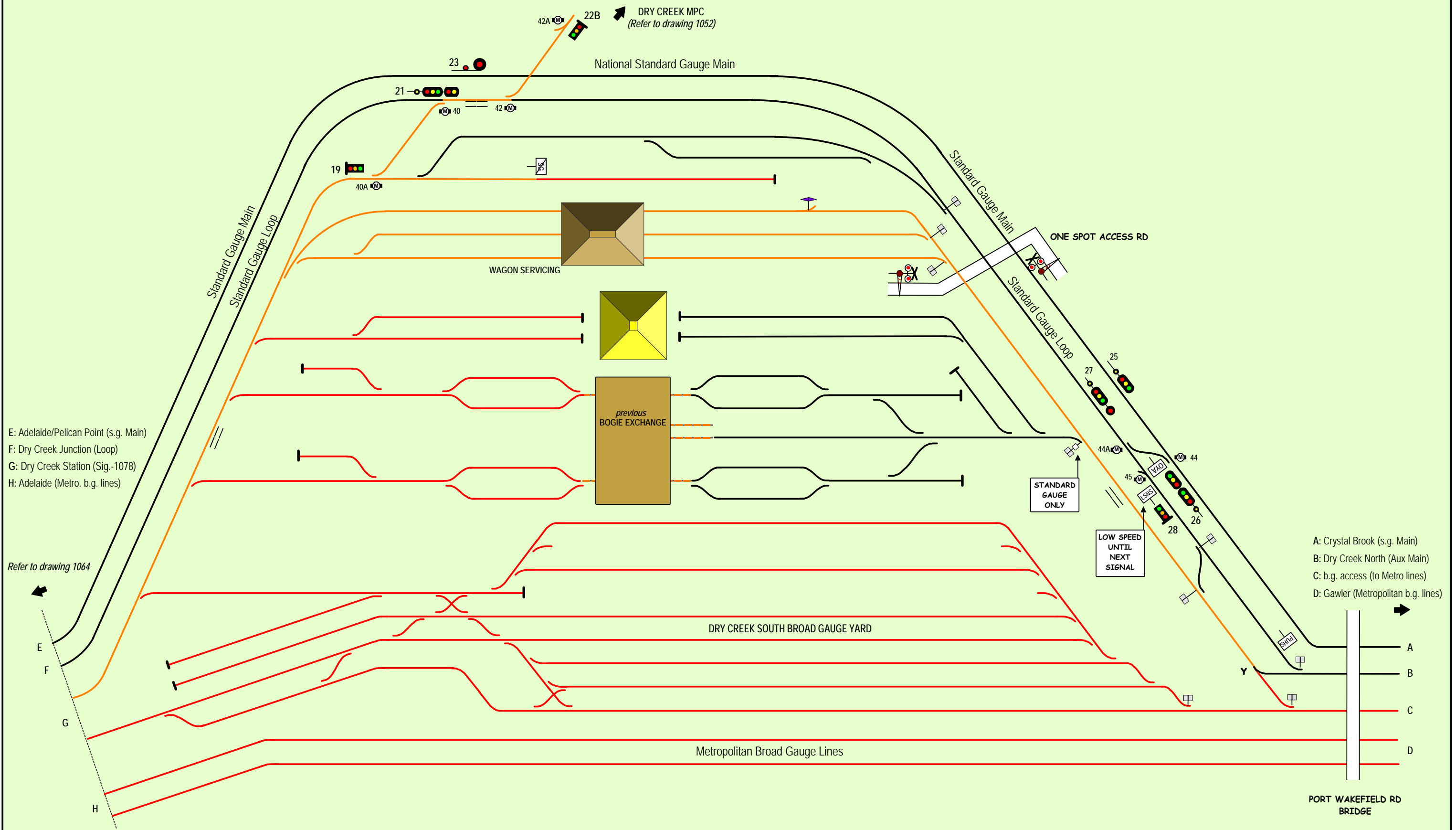


DRY CREEK (Dry Creek South & Motive Power Centre)



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

DRY CREEK SOUTH 1982 -- 2001 Dual Gauge Era



DRY CREEK SOUTH 2001 >> Dual Gauge Era

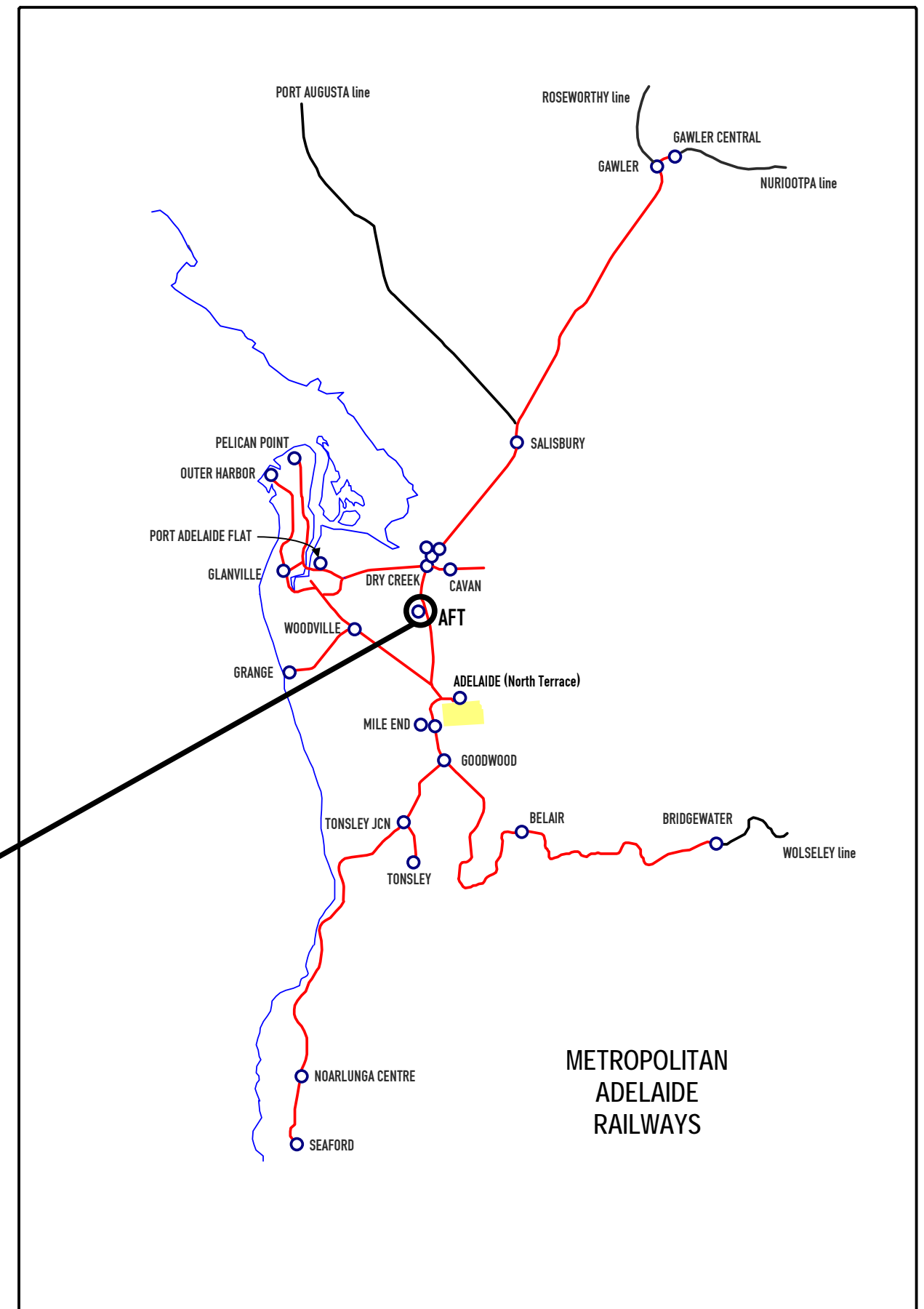
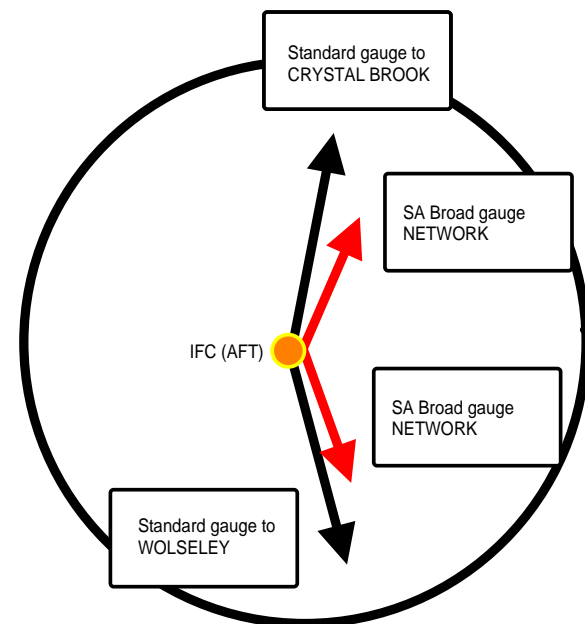
Drawn: G F Vincent
 for
 National Railway Museum
 Port Adelaide

Historic Notes

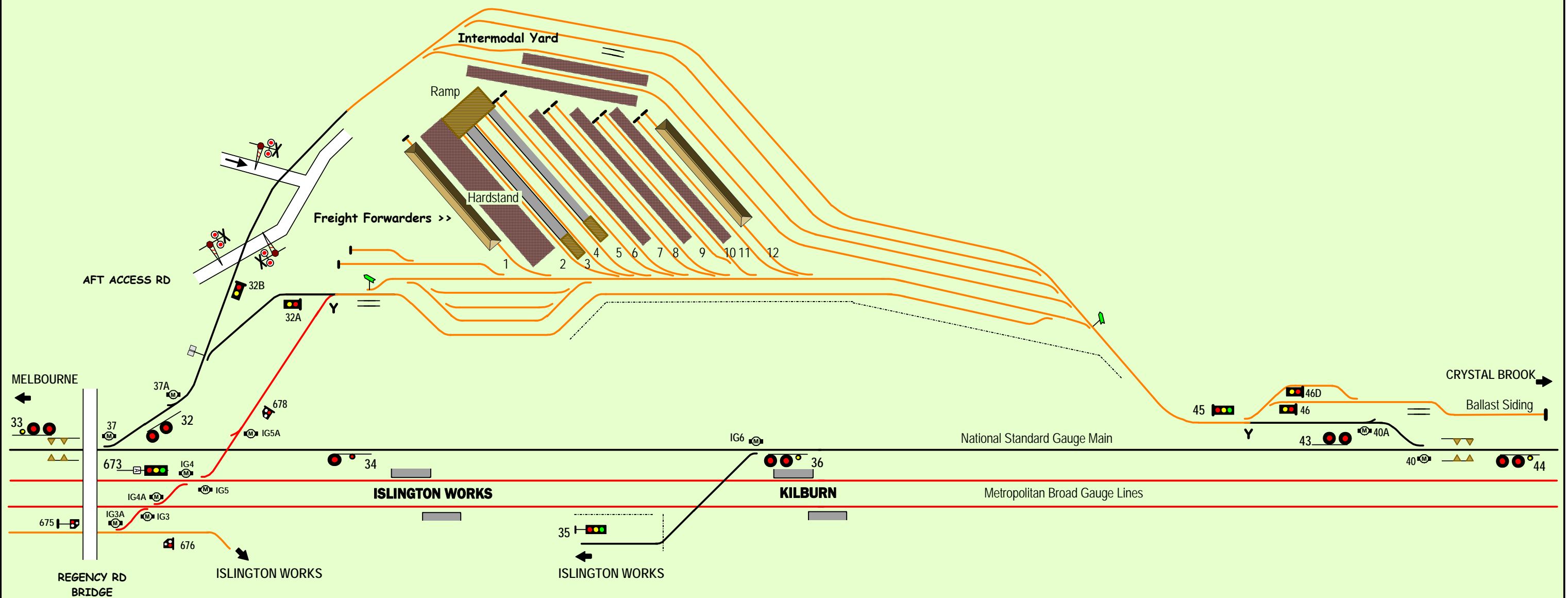
The Adelaide terminal for freight moved from its long standing location at Mile End to a new location on the western side of the Gawler line in the suburb of Regency Park opposite the Islington Works in 1982. This coincided with the arrival of connection to the national standard gauge system in the line from Crystal Brook, and paved the way for the development of the Keswick passenger terminal and subsequently for the Mile End passing loop on the line to Melbourne (in 1995).

The terminal was originally known as Islington Freight Centre (although it was neither part of the Islington Works or in a suburb of that name) and adopted several names perhaps based on the whims of the variety of terminal lessees that followed. It is now known as Adelaide Freight Terminal under the care of Pacific National, although the network manager ARTC still continues to refer to it illogically as "Islington".

From its inception the centre was almost all dual gauge with standard gauge entry available from both ends, but with broad gauge entry only from the south. In 1995 the commissioning of the standard gauge line to Melbourne ended general freight traffic on all broad gauge lines in SA and the b.g. connection was removed. Although much of the track in the terminal is still dual gauge, without broad gauge access, the 'dual gauge' category ended.



ISLINGTON FREIGHT CENTRE
(ADELAIDE FREIGHT TERMINAL)



* In the original dual gauge era the terminal was known as ISLINGTON FREIGHT CENTRE. Since that time the colloquial name has varied, generally dictated by the various terminal operators, until today it is known as AFT (ADELAIDE FREIGHT TERMINAL) (although the track operator still refers to it - somewhat confusingly - as ISLINGTON)

Y -- Fixed point divergence of two gauges

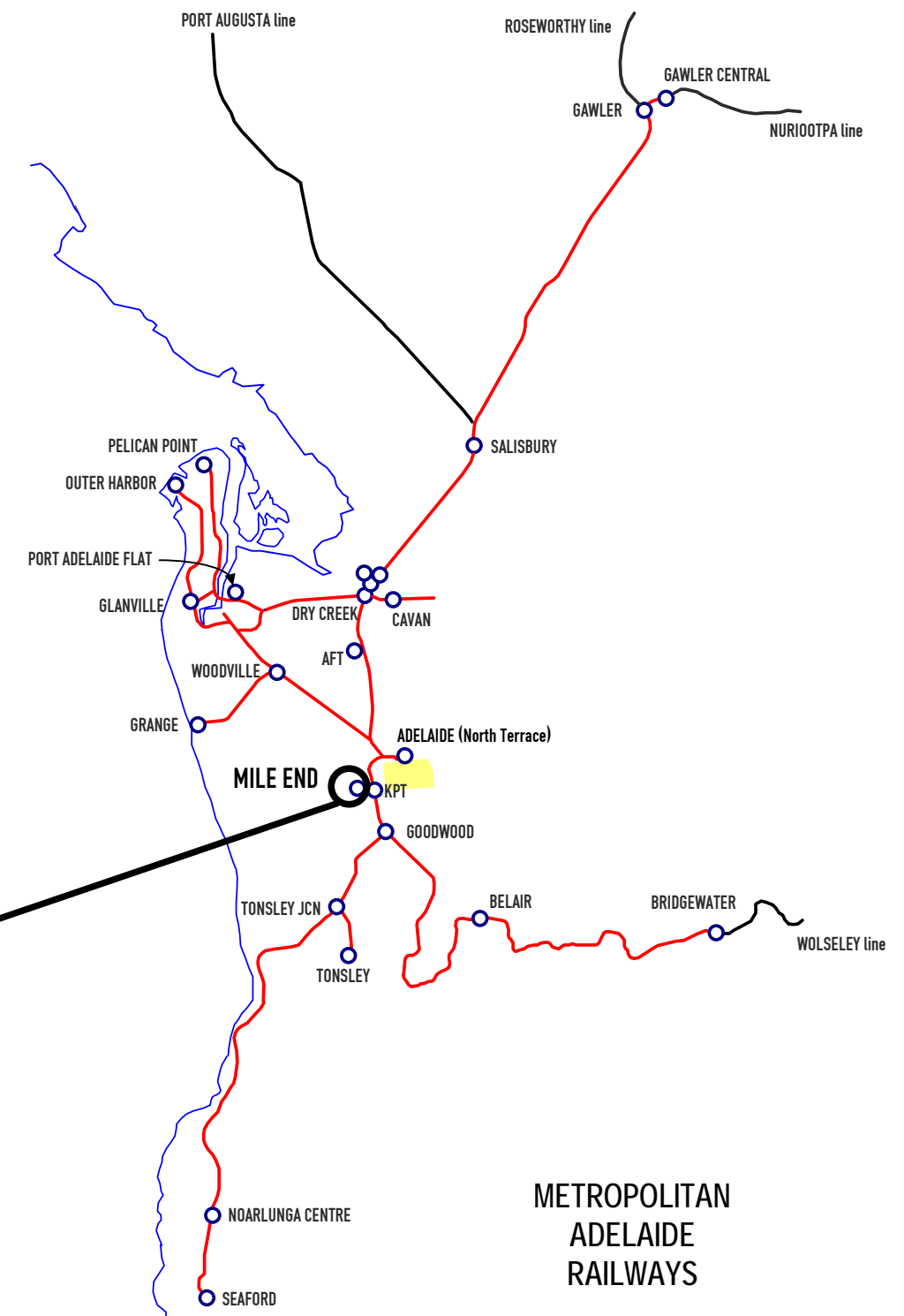
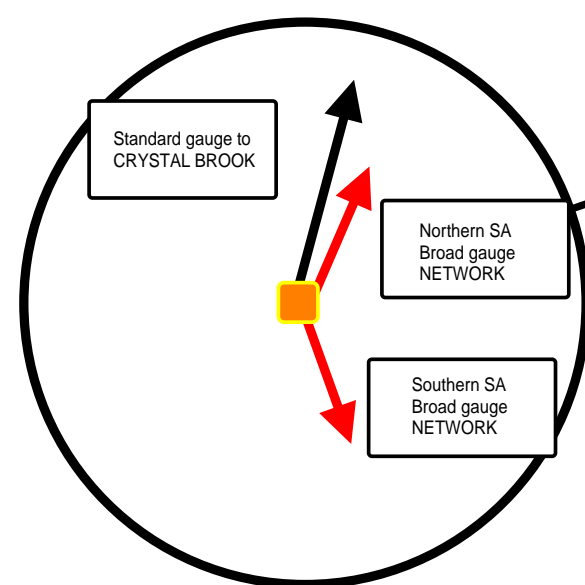
ISLINGTON FREIGHT CENTRE*

1982 - 1995
Dual Gauge Era

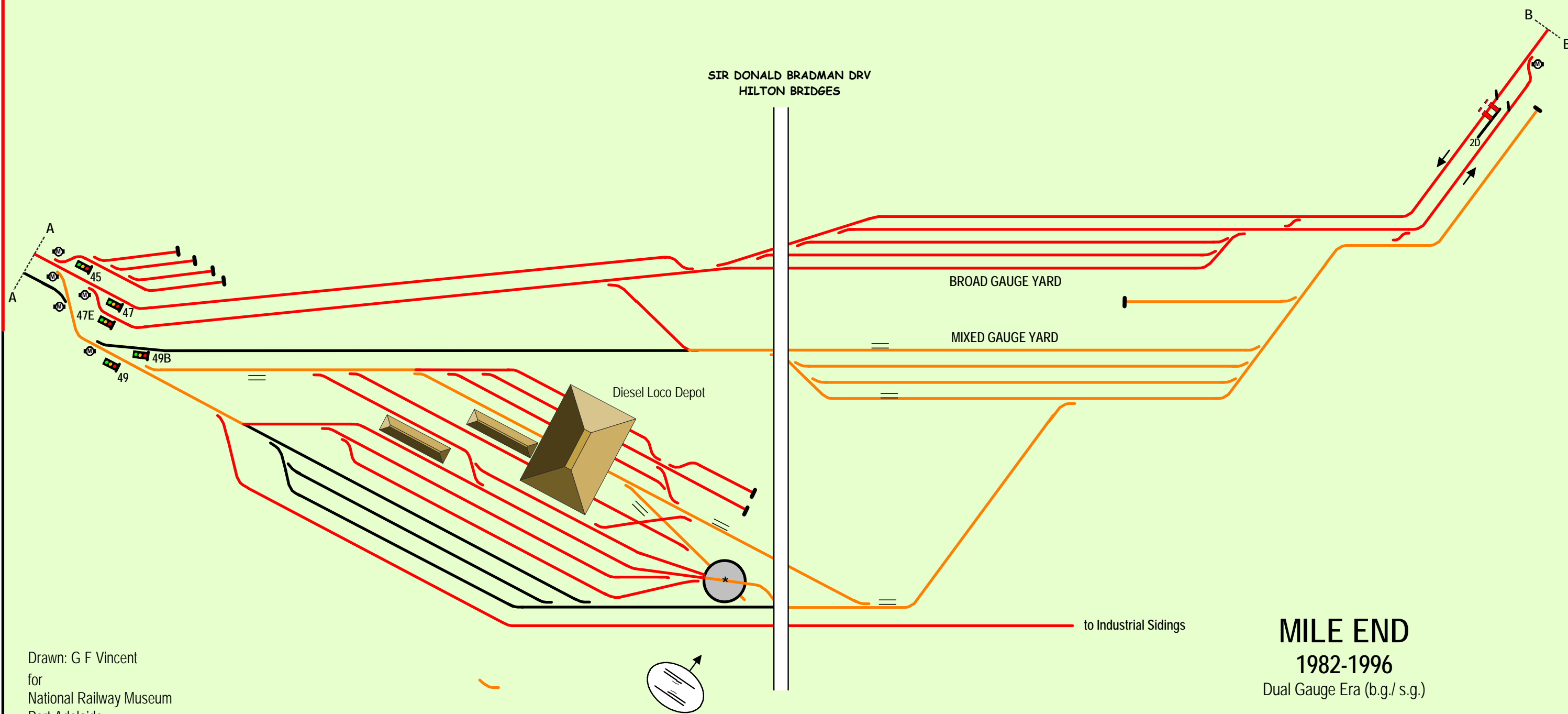
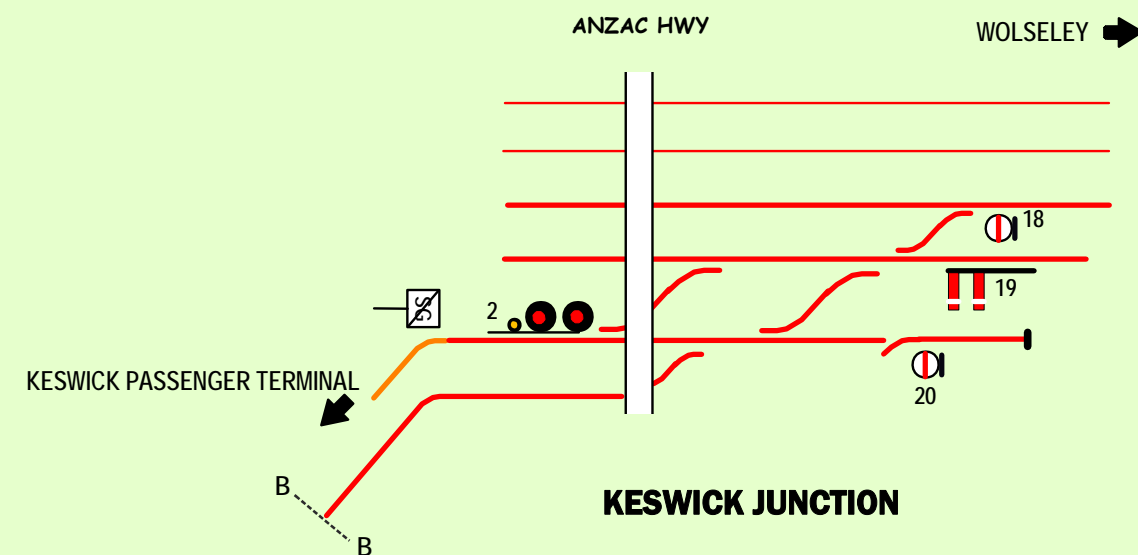
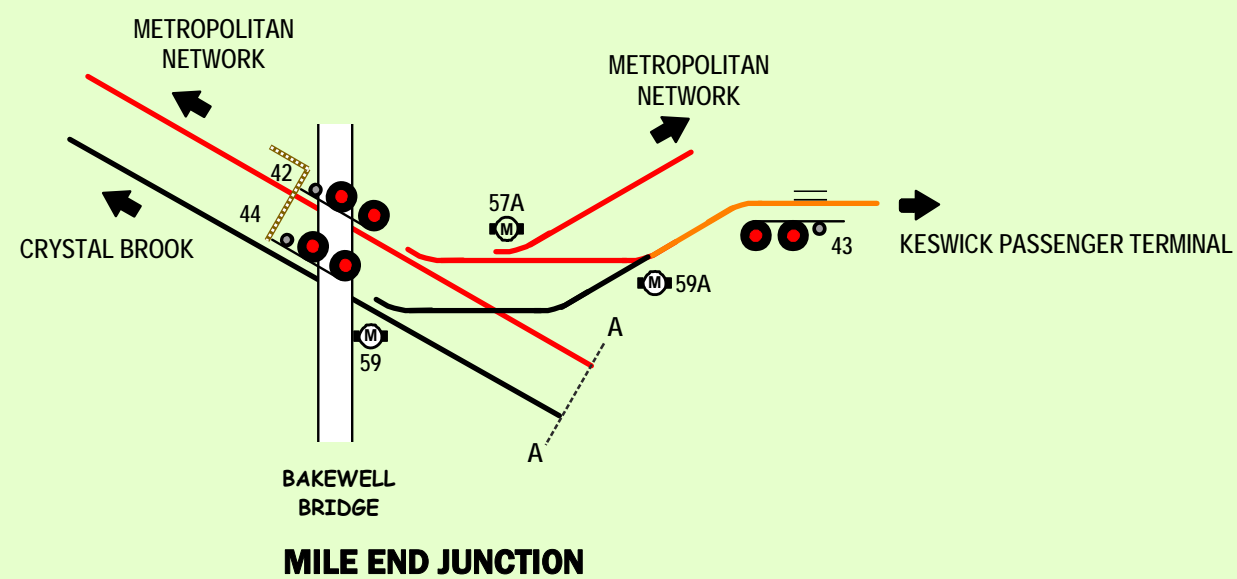
Historic Notes

Mile End was the major Freight, Goods and Loco depot for the Adelaide area, as it had been for many years, when the standard gauge arrived in 1984. Not-with-standing the development of new facilities at Dry Creek, a number of forwarders remained to be serviced at Mile End. A simplified yard with both broad and standard gauges, was instituted and for some time also accommodated the Diesel Loco depot.

Eventually the loco depot migrated to the new MPC at Dry Creek and the area gradually wound down, and it closed in time to make way for the new Mile End crossing loop on the new standard gauge connected southward to Melbourne. This last inter-capital Standard gauge link was eventually commissioned in 1995 and with the simultaneous closer of remaining general freight based country broad gauge lines, the Mile End yards finally closed.



MILE END



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

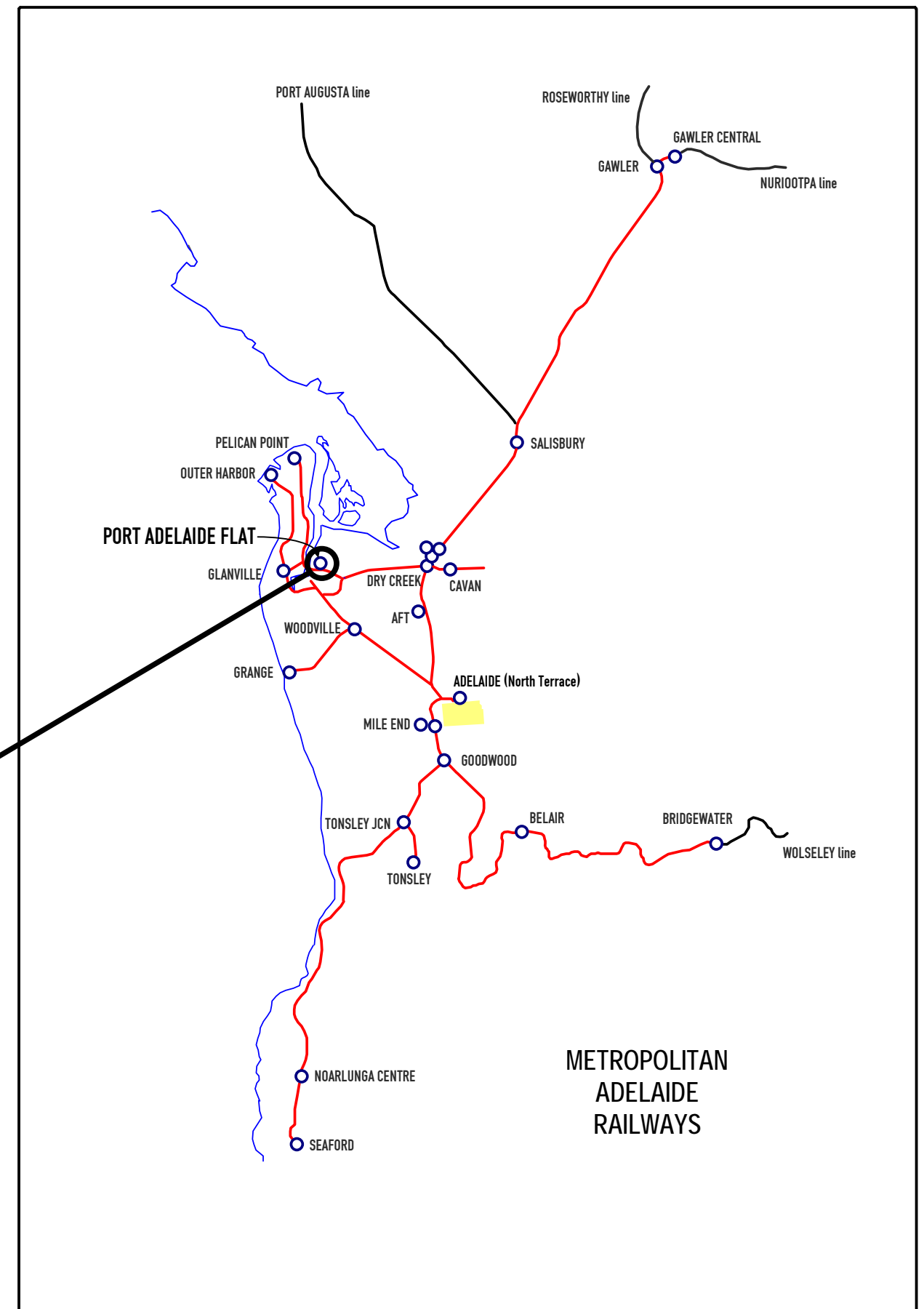
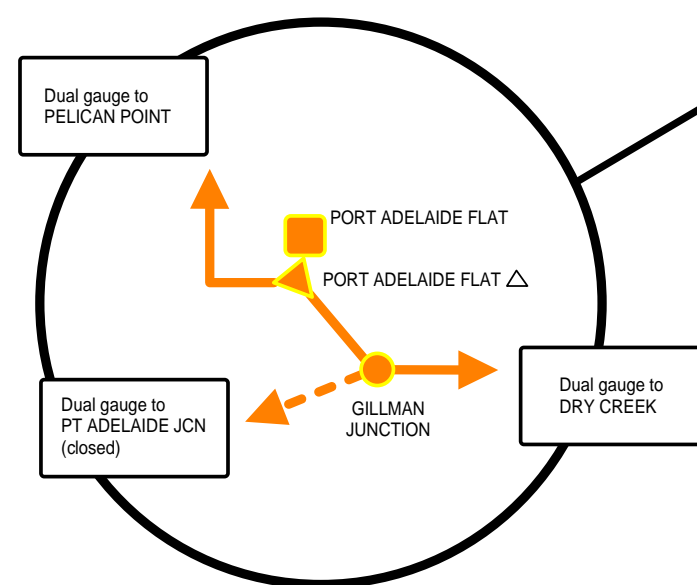
MILE END
1982-1996
Dual Gauge Era (b.g./ s.g.)

Historic Notes

Rails have been in Port Adelaide from the very beginning of railways in the Adelaide environment (1856) serving both passenger and freight needs of Adelaide's port. The configuration has changed many times in and around the port's many nooks and crannies, warehouses and docks. At the coming of container traffic a yard was developed on the NE corner of Eastern Parade and Grand Trunkway.

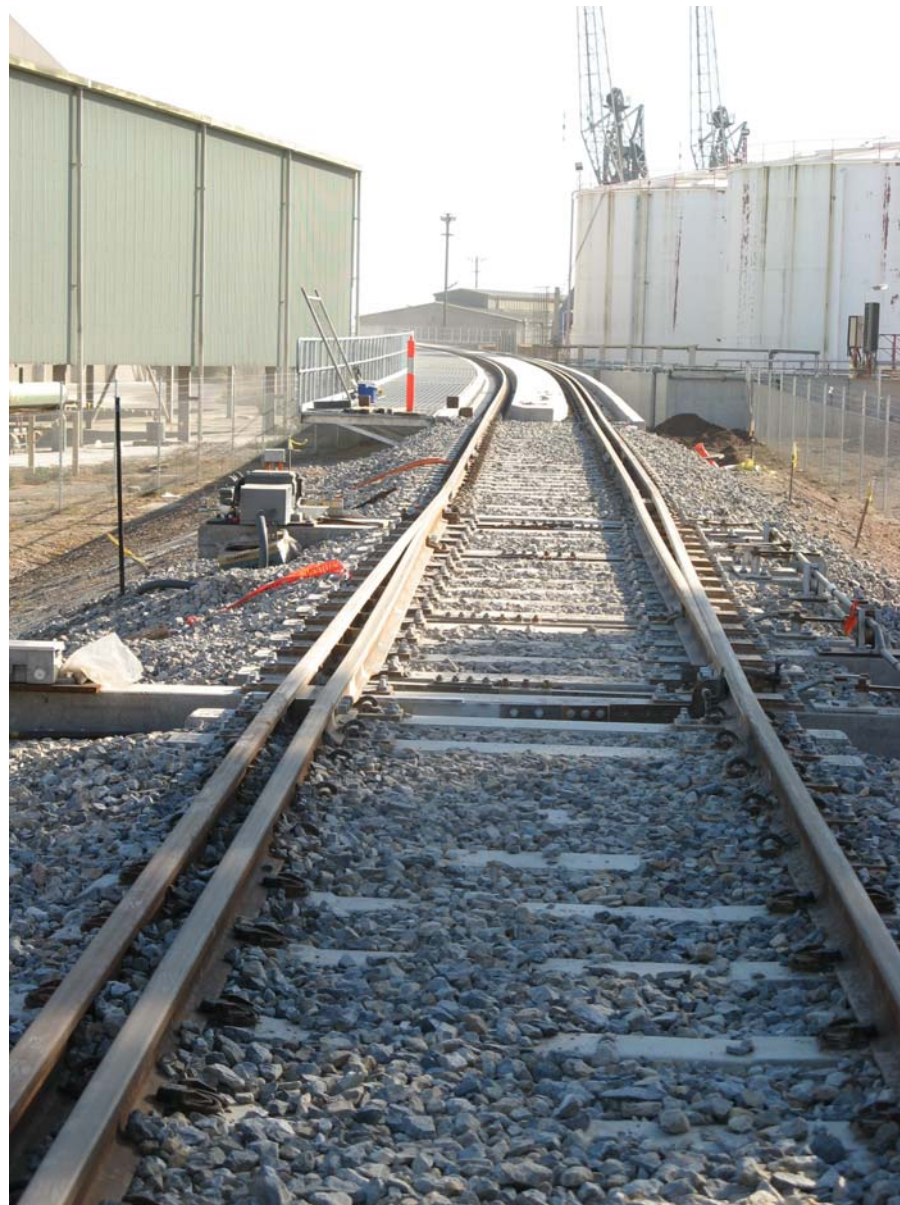
In 1982 the new standard gauge from Crystal Brook demanded a new dual gauge configuration of rail traffic in the port and Port Adelaide Flat was established as the container terminal, along with a marshalling yard to provide easy connection to the range of inner port silo installations.

The configuration changed again when then new rail bridge was built in 2008 over the Port River, with a triangle junction being built providing direct access from the yard to Pelican Point without reversal shunting.



PORT ADELAIDE FLAT

SOUTH AUSTRALIA'S *MIXED GAUGE MUDDLE*



3rd rail transition with moving blades - Pt Adelaide Flat
Moving blades installed to permit line speed transit
through the transition (but prevented mixed gauge trains)

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

SECTION - D MULTI GAUGE LINES in ADELAIDE METROPOLITAN AREAS

Metropolitan lines	Era		Drawing
Dry Creek - Pelican Point (via Glanville)	1982	2008	
Dry Creek Junction	1982	2001	1061
Gillman Junction	1982	2008	1062
Port Adelaide Junction	1982	2008	1062
Glanville	1982	2008	1062
Birkenhead	1982	2008	1063
Osborne	1982	2008	1063
Pelican Point	1982	2008	1063
Dry Creek - Pelican Point (via Port River Bridge)	2008	2015	
Dry Creek Junction	2001	2015	1064
Bishop	2010	2015	1065
Gillman Junction	2008	2015	1065
Port Adelaide Flat △	2008	2015	1065
Birkenhead	2008	2015	1066
Osborne	2008	2015	1066
Pelican Point	2008	2015	1067
Dry Creek - Pooraka/Cavan	1982	~2001	
Pooraka/Cavan	1982	~2001	1068

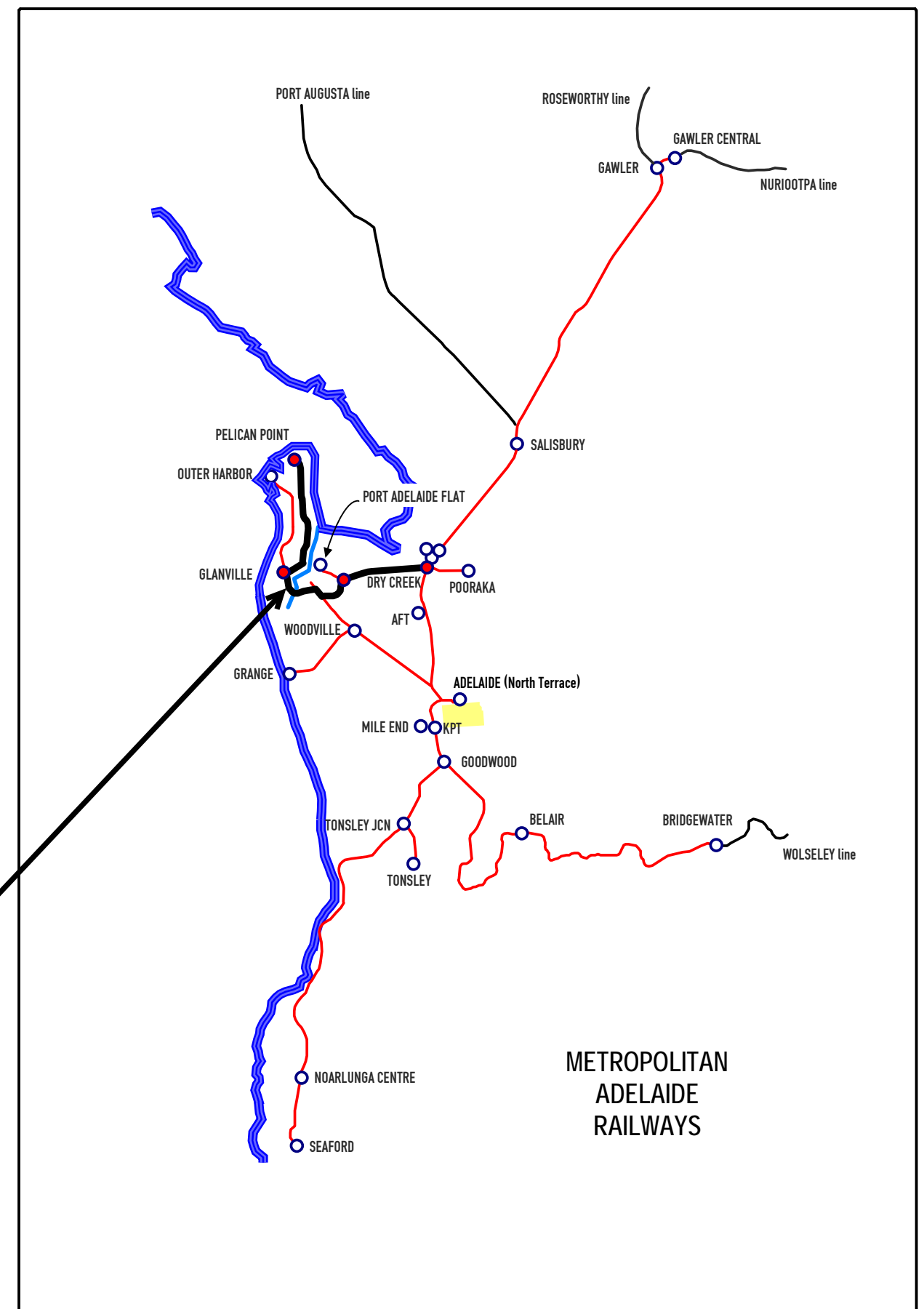
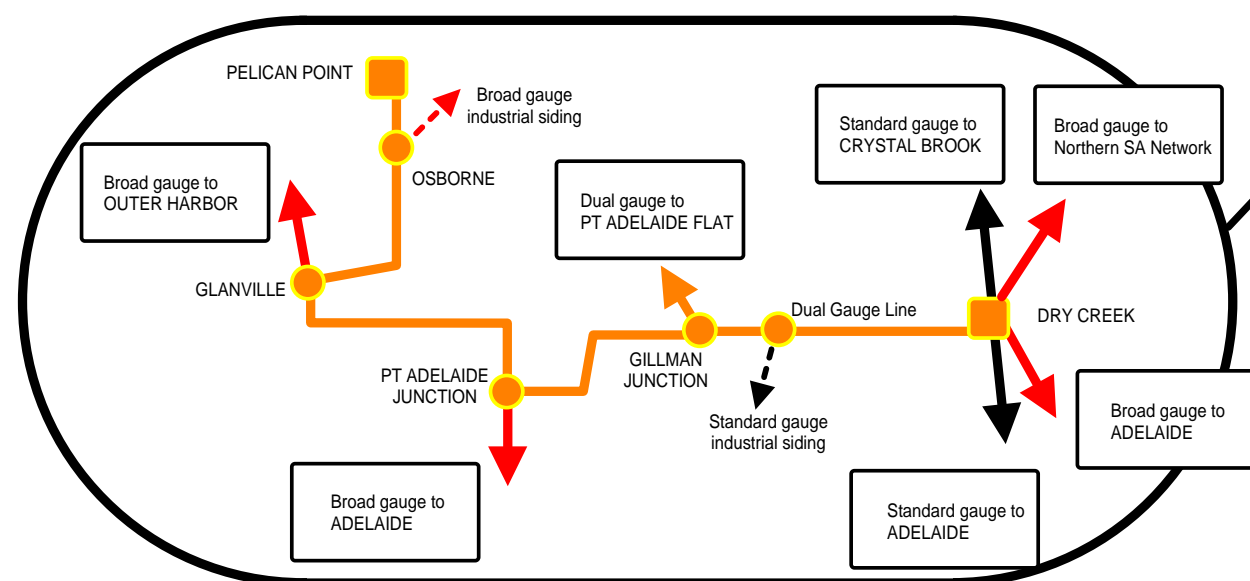
For other Metropolitan locations refer to
Section C - Multi Gauge Stations in Metropolitan Adelaide

Historic Notes

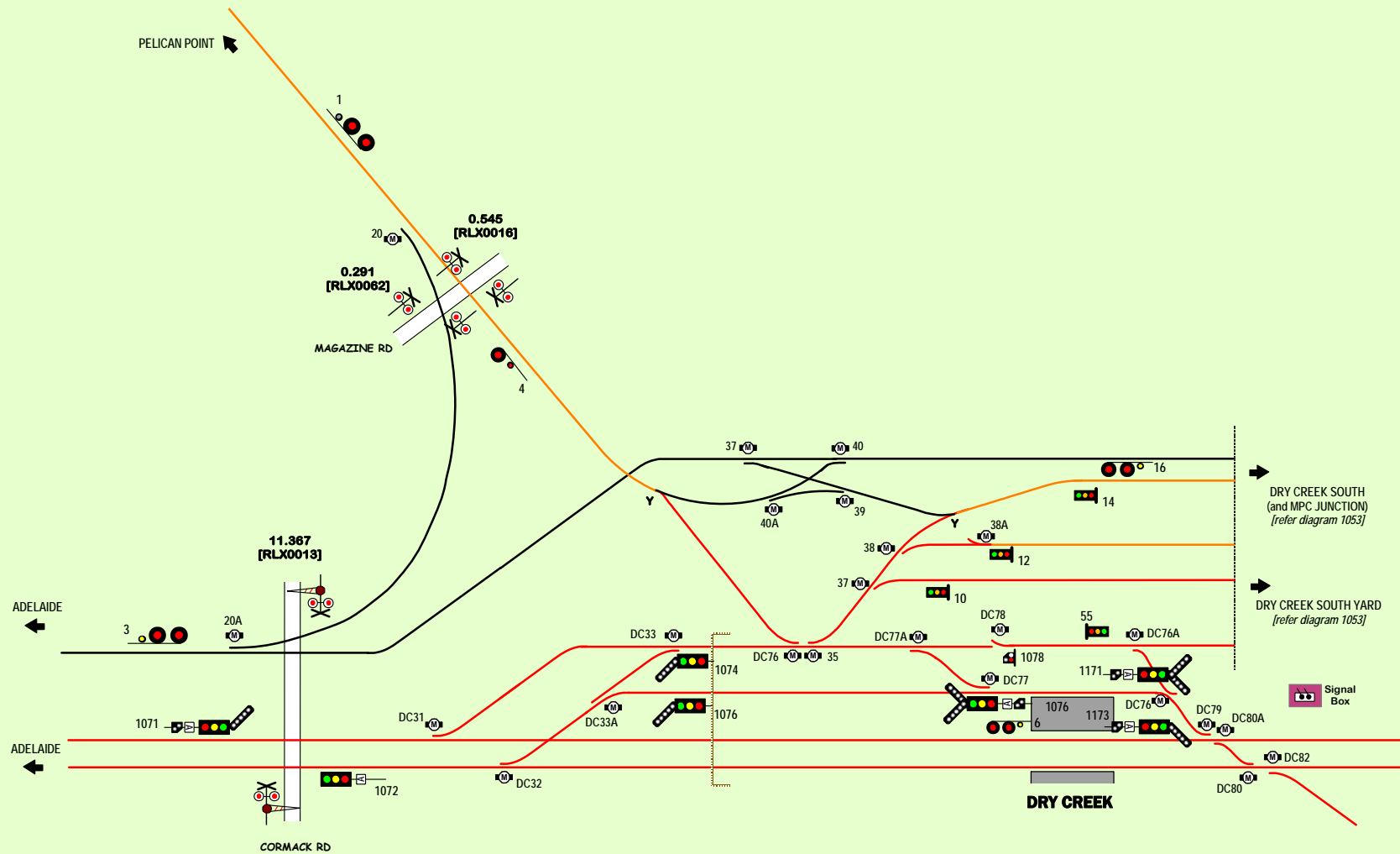
Standard gauge was added to the initial Dry Creek - Port Adelaide line as part of the Crystal Brook - Adelaide line conversion in 1982 to provide access for this gauge to the port environment. To include access to port related services on the LeFevre Peninsula, the additional rail was also added to the "Rosewater Loop", the metropolitan line over the viaduct, around via Glanville to the freight line at Birkenhead, and then via the "backway" through Osborne to the tip of the peninsula (this later section operating as a "yard"). This access for standard and broad gauge movements continued until plans were laid for of a new grain terminal at Pelican Point/Outer Harbor. With the new storage limited, and with supplies for ship loading to be provided on a "just-in-time" basis, it was predicted that the number of train movement per day would increase significantly.

The route was deemed to be unable to cater for this traffic, and a new access was established by building an additional rail bridge directly over the Port River from the location of the Port Adelaide Flat rail yard. This development, along with a complete rebuild of the 'yard' from Birkenhead to Pelican Point was commissioned in 2008 and a new route established --- refer to the section...

Dry Creek - Pelican Point (via Port River Bridge) line



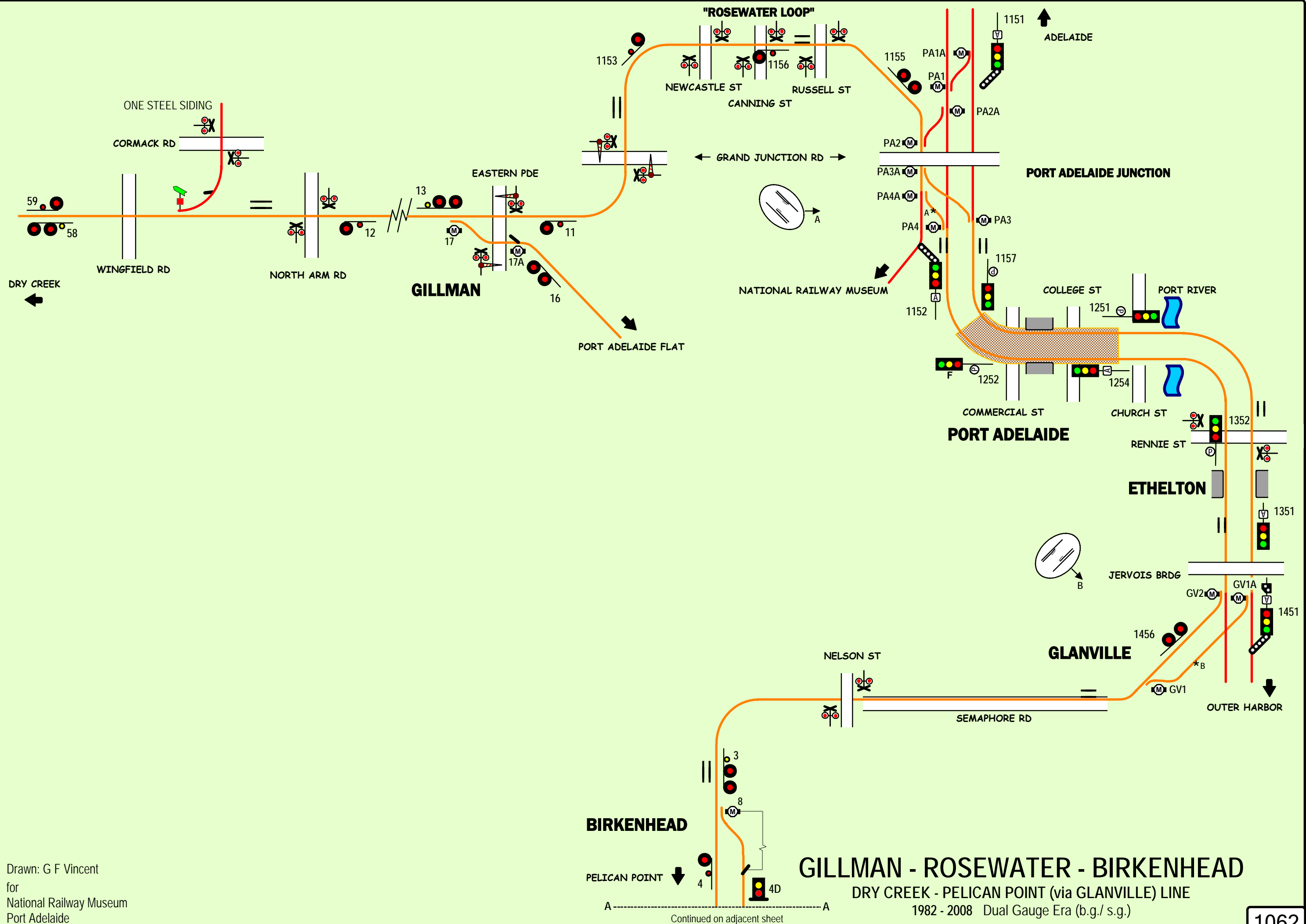
DRY CREEK - PELICAN POINT (via GLANVILLE) line



Y -- Fixed point divergence of two gauges

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

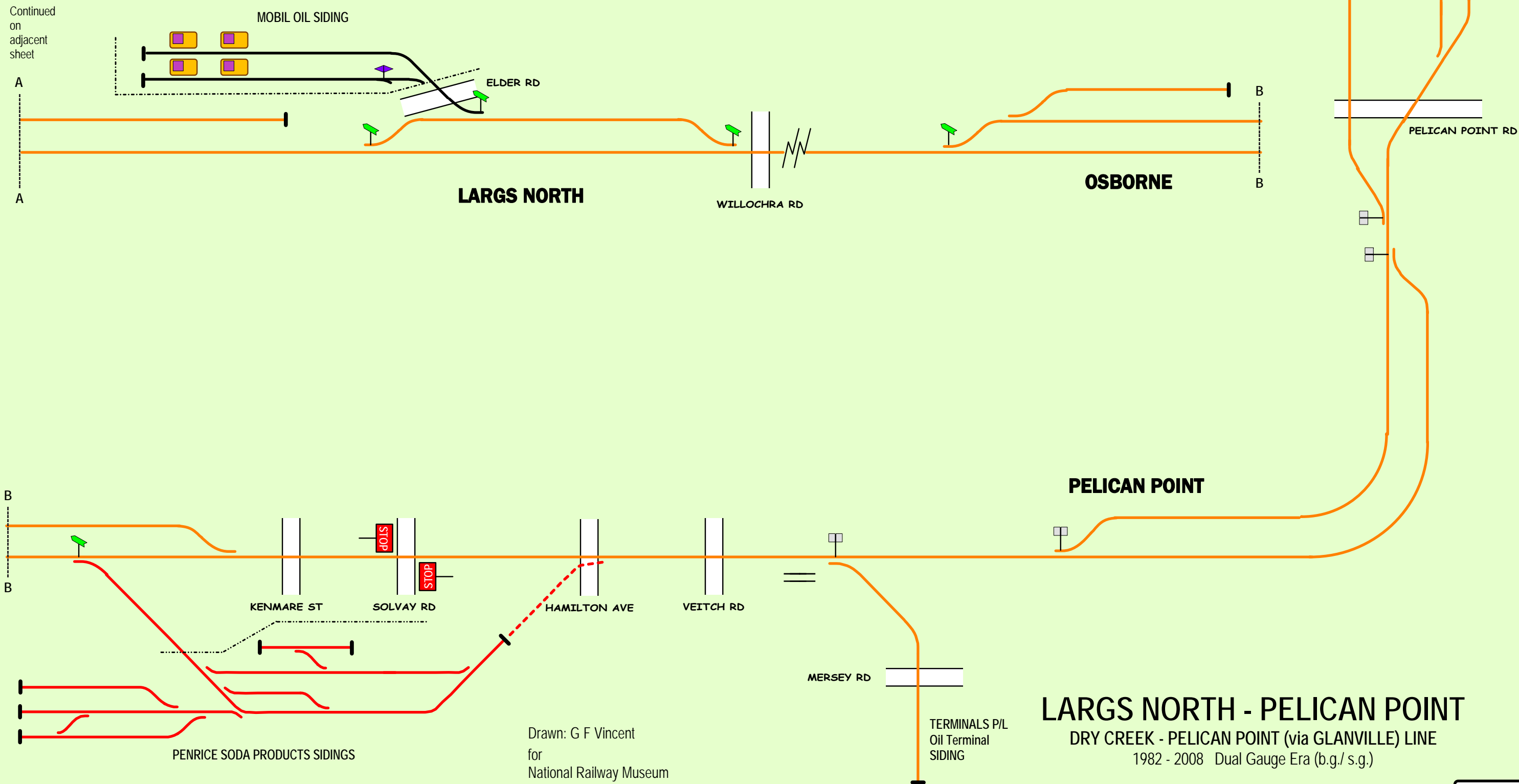
DRY CREEK JUNCTION 1982 - 2001 Dual Gauge Era



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

GILLMAN - ROSEWATER - BIRKENHEAD
 DRY CREEK - PELICAN POINT (via GLANVILLE) LINE
 1982 - 2008 Dual Gauge Era (b.g./ s.g.)

Continued
on
adjacent
sheet



Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

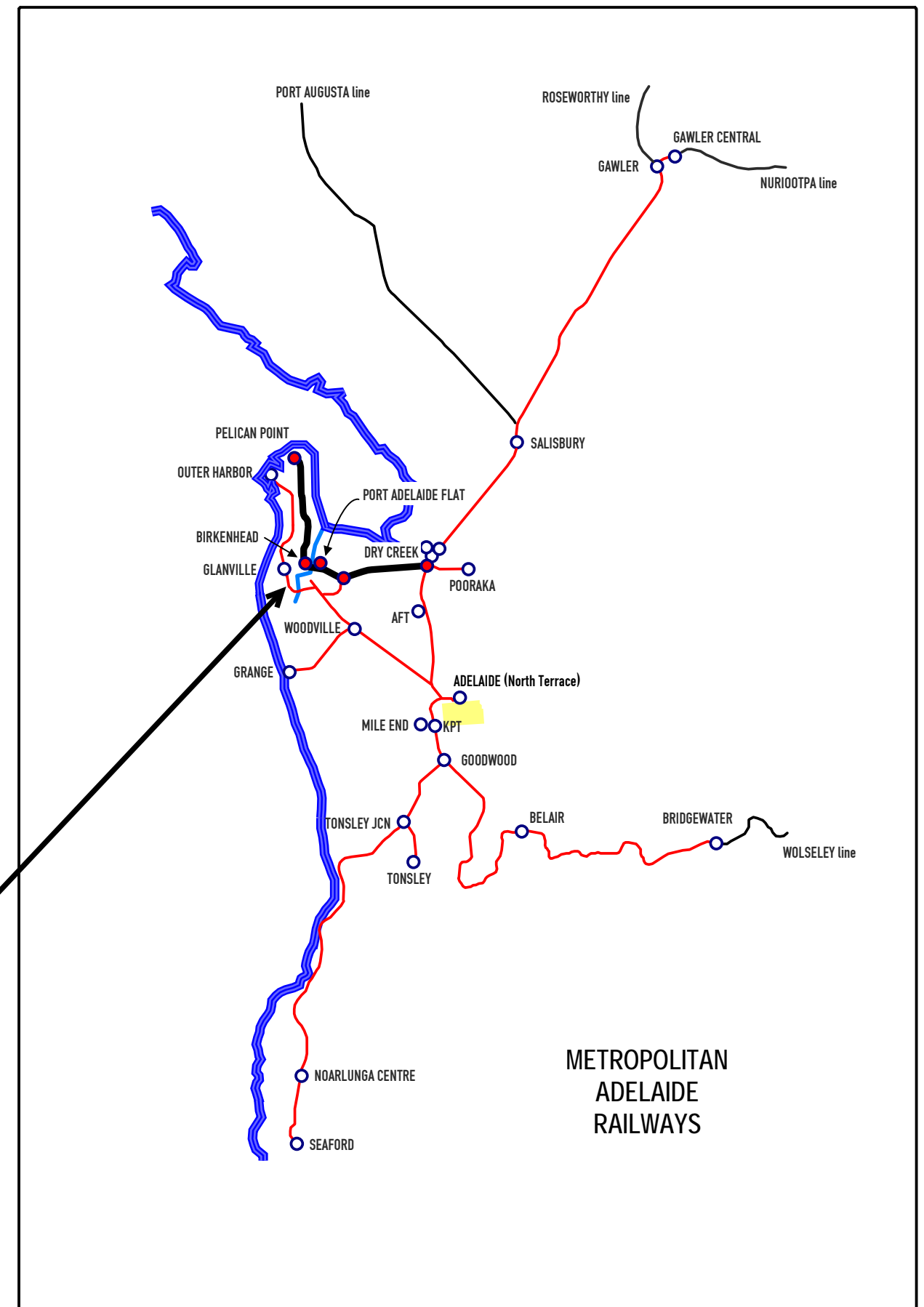
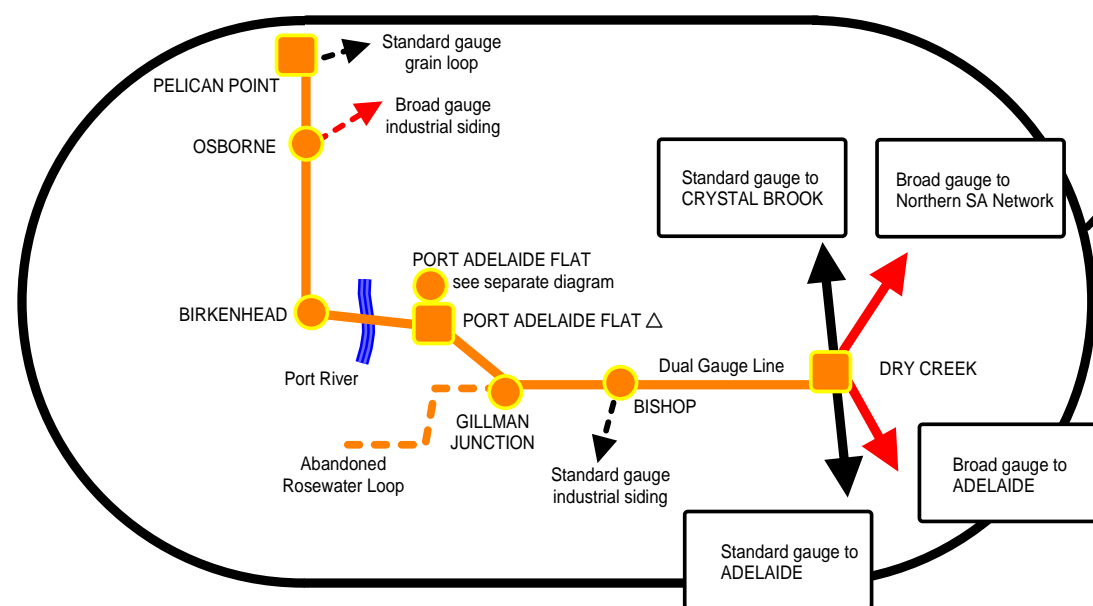
LARGS NORTH - PELICAN POINT
DRY CREEK - PELICAN POINT (via GLANVILLE) LINE
1982 - 2008 Dual Gauge Era (b.g./s.g.)

Historic Notes

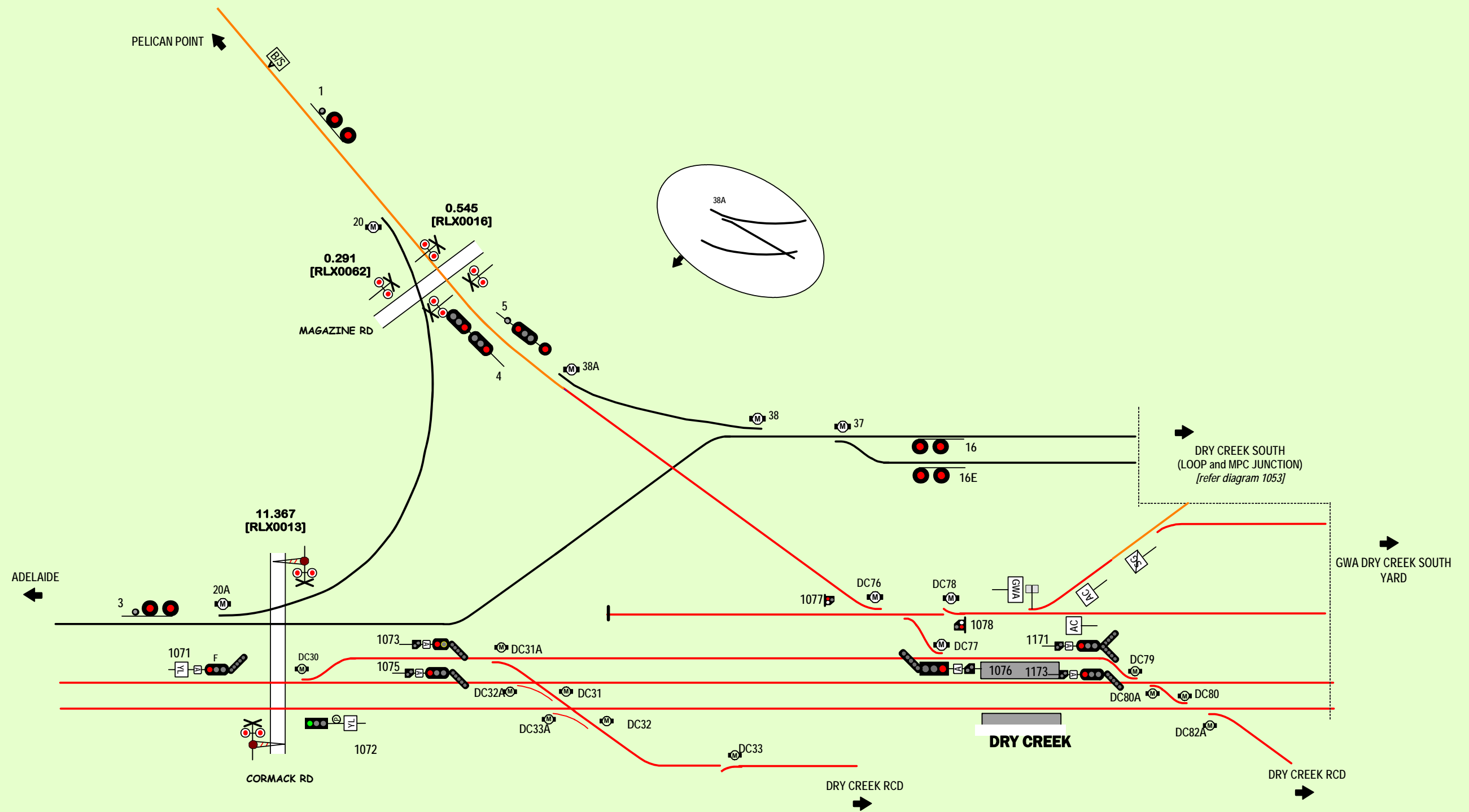
Standard gauge was first added to the Dry Creek - Port Adelaide line in 1982 and extended to the LeFevre Peninsula via the "Rosewater Loop", the metropolitan line over the viaduct, around via Glanville to the freight line at Birkenhead, and then via the "backway" through Osborne to the tip of the peninsula.
Refer to the section *Dry Creek - Pelican Point (via Glanville)* line

A route via a new bridge over the Port River was commissioned to cater for the increased traffic servicing a new grain terminal at Pelican Point.

This development, along with a complete rebuild of the 'yard' from Birkenhead to Pelican Point was commissioned in 2008.

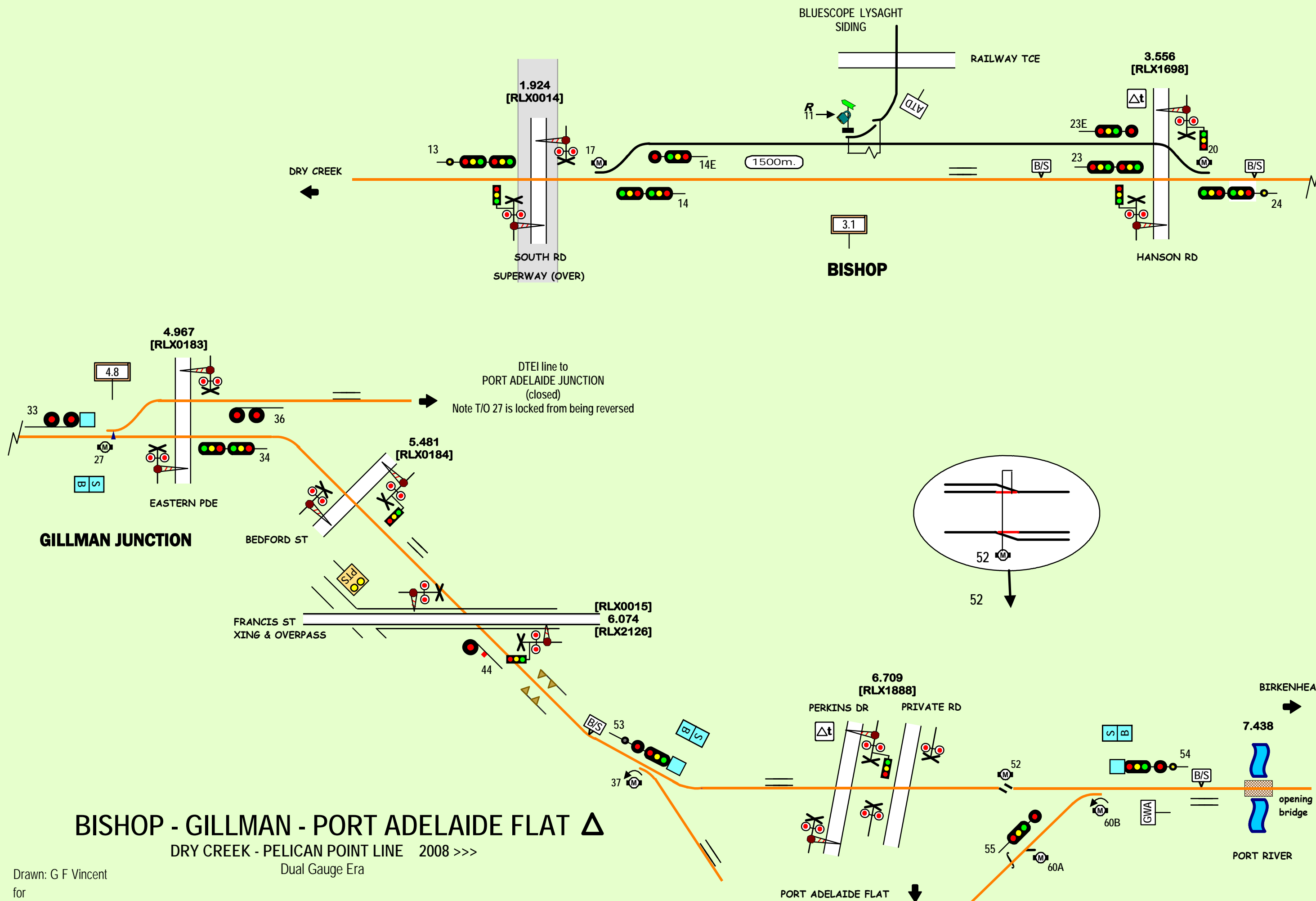


DRY CREEK - PELICAN POINT (via PORT RIVER BRIDGE) line



DRY CREEK JUNCTION 2001 >> Dual Gauge Era

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

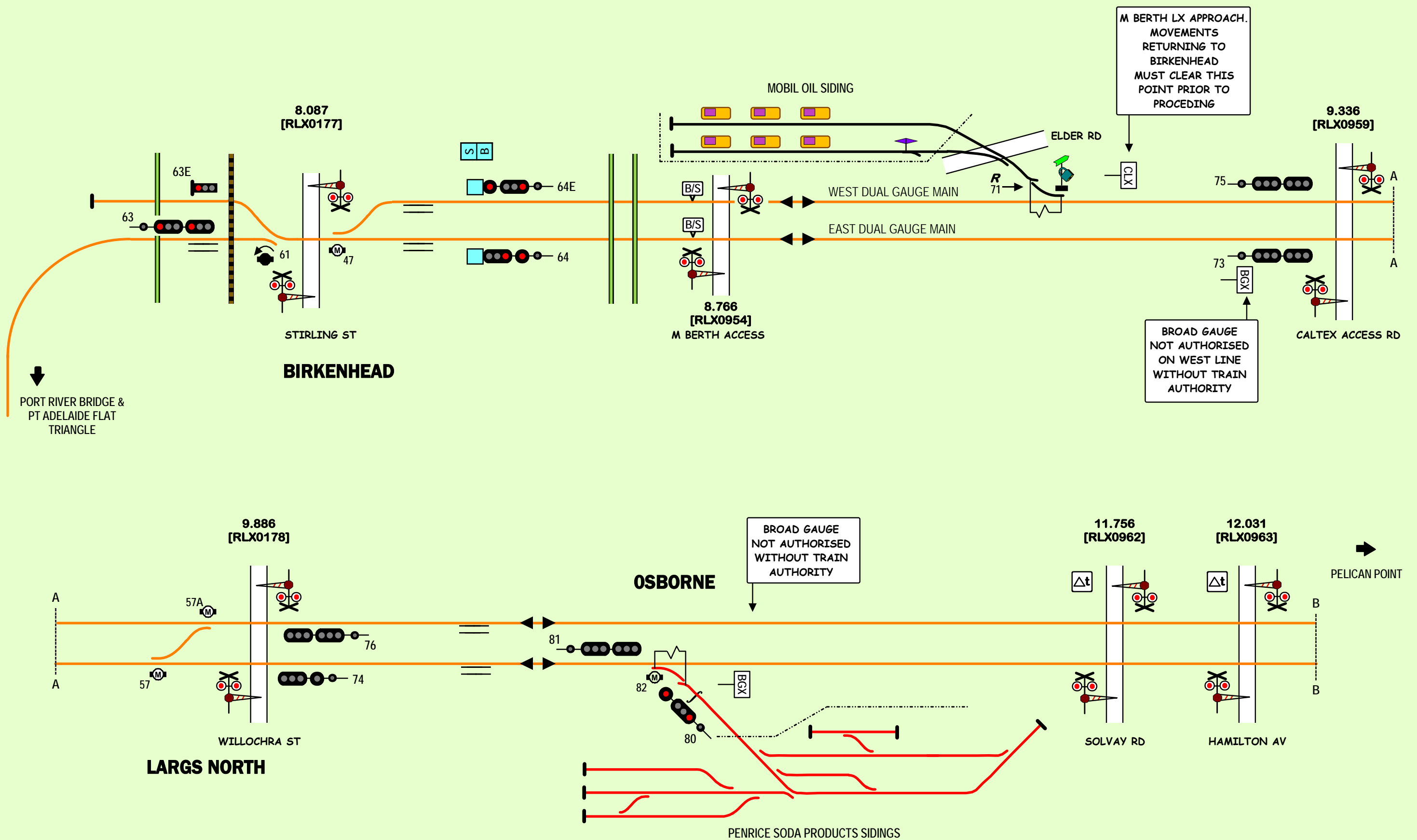


BISHOP - GILLMAN - PORT ADELAIDE FLAT Δ

DRY CREEK - PELICAN POINT LINE 2008 >>>

Dual Gauge Era

Drawn: G F Vincent
for
National Railway Museum
Port Adelaide



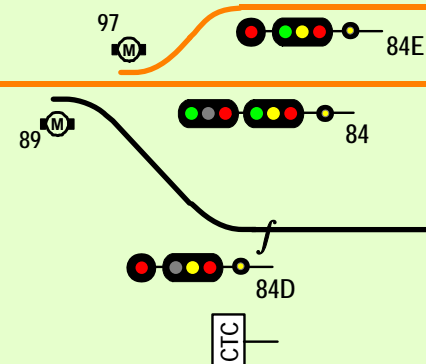
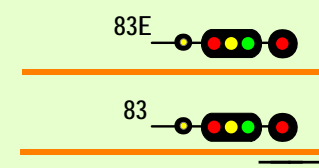
BIRKENHEAD - OSBORNE

DRY CREEK - PELICAN POINT LINE 2008 >>>
Dual Gauge Era

DRY CREEK
←

12.981
[RLX0180]

VEITCH RD



weighbridge
mounted
back to back

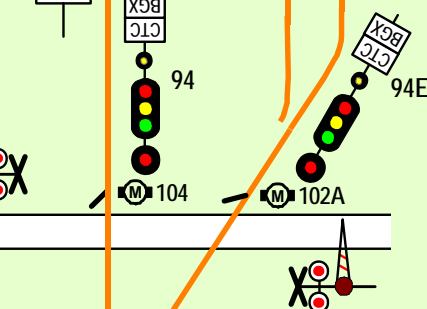
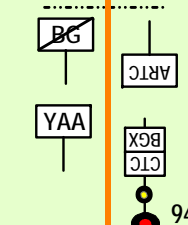
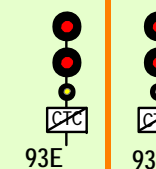
PELICAN POINT

MACKENZIE INTERMODAL TERMINAL SIDING

MOVEMENT SHALL
NOT PROCEED
PAST THIS POINT
WITHOUT AUTHORITY
OF YARD SUPERVISOR

PELICAN POINT RD

102
100



No. 6 BERTH (OUTER HARBOR)

DUBAI PORTS
CONTAINER TERMINAL
SIDINGS

14.896
[RLX0181]

START CTC.
BROAD GAUGE
NOT AUTHORISED
WITHOUT TRAIN
AUTHORITY

unloader



Viterrra Grain
GRAIN TERMINAL

PELICAN POINT

2008 >>>
Dual Gauge Era

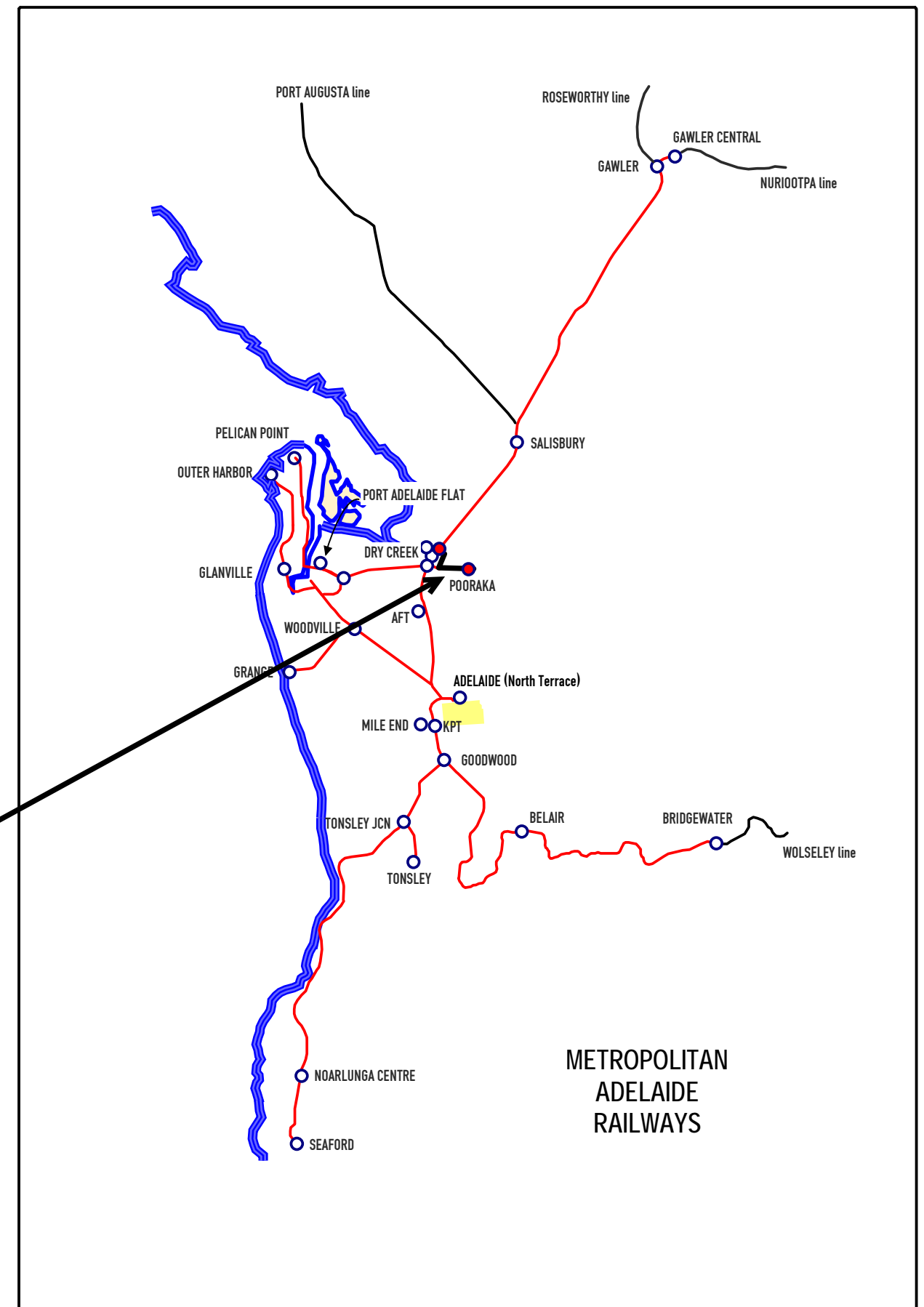
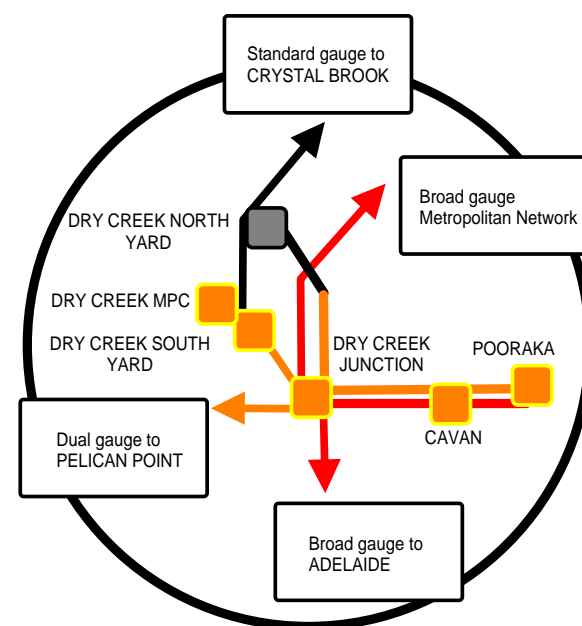
Drawn: G F Vincent
for
National Railway Museum
Port Adelaide

1067

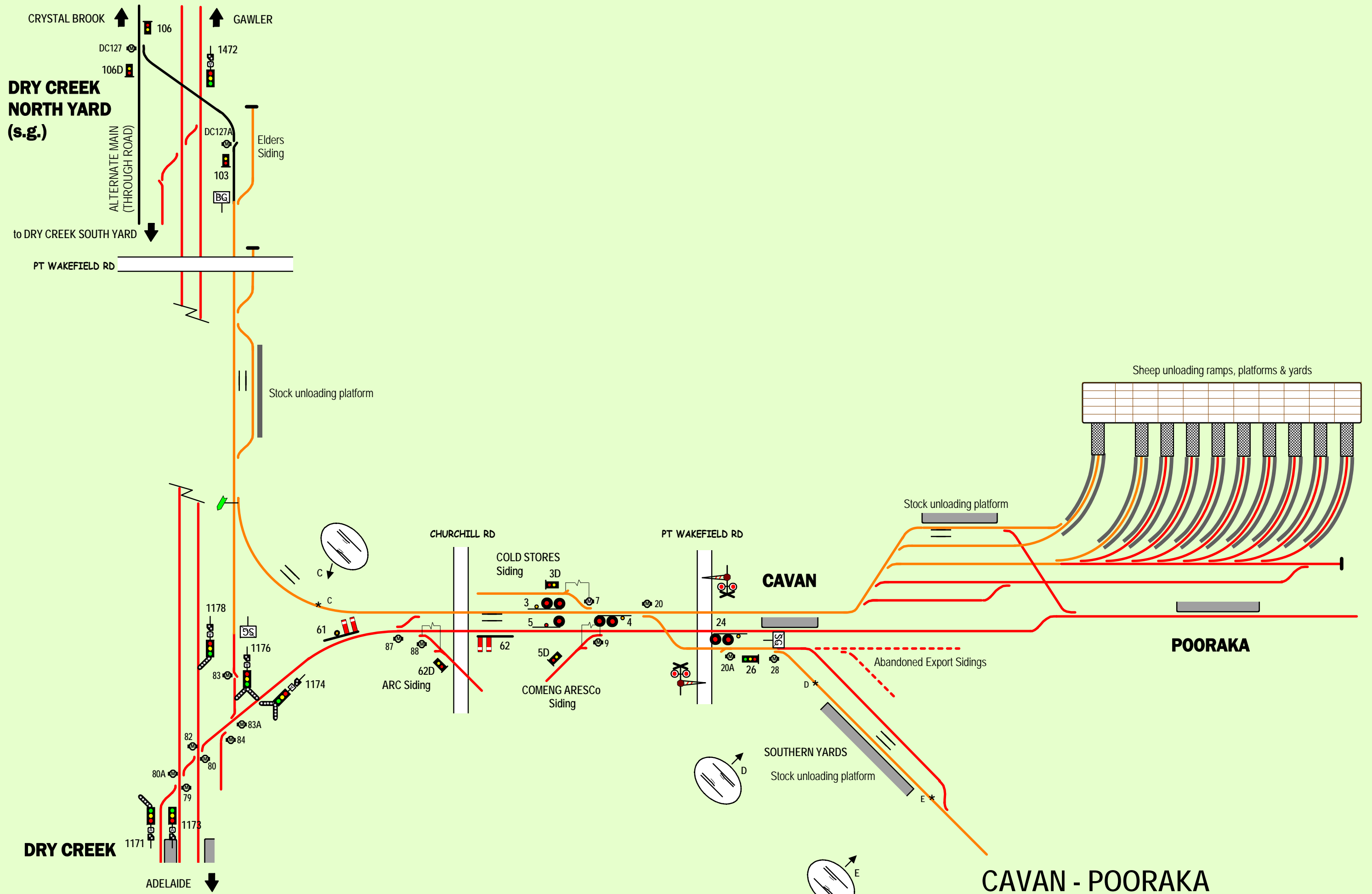
Historic Notes

The Pooraka-Cavan complex on the original broad gauge Northfield (Stockade) line was established in 1913 as the stock receival terminal for the Adelaide meat supply industry. It was still performing this function in 1982 when the standard gauge connection to Crystal Brook and the national network reached Dry Creek and because the railways were still in the business of transporting stock it was clearly necessary to extend this facility into the stock arrival complex. It was achieved by connecting a standard gauge lead from the Dry Creek North yard, across the metropolitan Gawler line and through a series of unloading sidings and then as a dual gauge line, east to Cavan and Pooraka. An independent broad gauge line was retained to permit metropolitan trains uninterrupted access to the line (until the demise of this service in 1987).

Eventually the carriage of stock by rail was abandoned in South Australia in 1997 and the Cavan/Pooraka branch was abandoned.



DRY CREEK - POORAKA line



Drawn: G F Vincent for
National Railway Museum, Port Adelaide

CAVAN - POORAKA
DRY CREEK - POORAKA BRANCH LINE 1982 - 1997
Dual Gauge Era