SOMERSAULT

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Signalling Record Society of Victoria Inc

The signalbox at Horsham was the only place in Victoria where five patterns of miniature electric staffs were found. All of the instruments worked sections on the main western line. The three further instruments worked to stations on the Up side of Horsham (Murtoa, Jung, or Dooen), and the two nearer instruments worked to stations on the Down side of Horsham (Pimpinio or Dimboola). Dooen was provided with a switch out instrument on 12 July 1934, Pimpinio on 6 September 1934, and Jung on 23 March 1961. The long sections were Murtoa - Horsham - Dimboola and the 1974 WTT showed that these sections were worked from early afternoon each day until early the following morning. At 0210 (M-Sa) Jung switched in, dividing the Murtoa - Horsham section, and at 0830 (M-Sa) Dooen switched in, dividing the Jung - Horsham section. Dooen remained in M-F until No 34 Up Pass cleared Jung around 1457, and Jung remained in until No 36 Up Fast Goods cleared Murtoa around 1658. On Saturday, both Dooen and Jung switched out when No 25 Down Pass arrived at Horsham around 1350. Dooen always had to switch in after Jung and close first. On the Down side, Pimpino had more varied switching hours. It was open Mondays from 0840 until No 36 Up Fast Goods cleared Horsham at 1548 , Tu & Fri from 0445 until No 61 Down Roadside cleared Dimboola at 1630, and We, Th, & Sa from 0440 until No 34 Up DRC cleared Horsham at 1410. In the middle of the picture can be seen the single magneto generator which was cranked to send bell signals to all of these stations. Above the maggie is the box to box phone line. To the left of the phone can be seen the two switches that connected the various instruments to the Up side line wire. The signalman is standing at the train register desk, and the various phones can be seen in front of him. This view was taken around 1974. Photograph David Langley

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Minutes of Meeting held Friday May 18, 2007, at the Surrey Hills Neighbourhood Centre, 1 Bedford Avenue, Surrey Hills

Present: – B. Cleak, G. Cleak, G. Cumming, G. Dunn, G. Fyfe, C. Gordon, J. Gordon, A. Gostling, W. Johnston, K. Lambert, D. Langley, S. Malpass, B. McCurry, T. Murray, B. Sherry, F. Strik, A. Wheatland, R. Whitehead & R. Williams.

Apologies: – W. Brook, V. Findlay, J.D. McLean, C. Rutledge, P. Silva & S. Turnbull.

The President, Mr. David Langley, took the chair & opened the meeting @ 20:07 hours.

Minutes of the March 2007 Meeting: – Accepted as read. B. Sherry / G. Cleak. Carried.

Business Arising: – The reference to the grade separation work should have referred to Taylors Road at Keilor Plains Railway Station.

Membership renewal notices have now been posted to all members.

David Langley suggested that the Harden – Wallendbeen re – signalling in New South Wales should be complete by now.

David Langley noted that some of the signal control panels from the Eastern Line had been rescued for future preservation.

Correspondence: – Letter to Gary Fyfe welcoming him to membership of the SRSV.

The Annual Return and cheque had been sent to Corporate Affairs Victoria.

Letter from Graeme Reynolds with suggestions for future tours.

Letter from Mike Saunders with details of signal bridges.

F. Strik / G. Cleak. Carried.

Reports: – Tours. The location for the tour in 2007 was discussed. Wodonga "A" Box and Wodonga Coal Sidings were suggested due to the uncertain future of the Broad Gauge Line north of Seymour. Discussion took place on the future of the Broad Gauge between Seymour – Albury with a number of rumours being floated.

The meeting agreed on Wodonga "A" Box and Wodonga Coal Sidings as suitable locations for the next SRSV tour.

General Business: – Keith Lambert advised that the unit lever panel at Broadmeadows had been replaced by a Westcad display. The Westcad at Craigieburn will be commissioned next weekend including the commissioning of the signals at Craigieburn.

Keith Lambert noted that signal posts between Box Hill – Blackburn would be renumbered this week-end.

Keith Lambert reported on a recent trip to New South Wales where he observed the works in progress at Harden, Cootamundra and Junee.

Chris Gordon advised that over the June long weekend, Somerton Loop would be provided with a Westrace interlocking.

David Langley advised that between 2nd June 2007 – 10th June 2007 there would be no trains on the North – East Line while two bridges on the down side of Kilmore East are replaced.

Bob Whitehead reported that six sidings in total would be provided at Craigieburn.

The recent derailment at Oakleigh was discussed.

Tom Murray reported that a light engine would run for signal sighting purposes at Craigieburn.

Andrew Wheatland noted that staff ticket boxes are to be provided for the Ballarat – Ararat section and that the S & T Department at Puffing Billy had been requested to provide the gauge rings for the boxes.

Tom Murray described the recent safety audit at Puffing Billy conducted by the Department of Infrastructure.

Glenn Cumming referred to the recent signalling book published by the ARHS and suggested to the meeting that a revision of "Clear Normal Speed" by John Sinnatt might be a good idea. A revision of the original 1966 publication might include additional photographs, new diagrams and additional text on advances since 1966. In addition, printing technology had improved significantly. After a lengthy discussion it was agreed that the Secretary write to the ARHS for their response to the suggestion.

Syllabus Item: - The President introduced himself to present the Syllabus Item.

David presented a selection of slides from his collection featuring material from many trips interstate and to New Zealand. A variety of subjects were viewed; with a bias towards railway signalling (of course).

At the completion of the Syllabus Item, the Vice – President thanked David for the entertainment & this was followed by acclamation from those present.

Meeting closed at approximately 22:30 hours.

The next meeting will be on Friday 20 July, 2007 at the Surrey Hills Neighbourhood Centre, Bedford Avenue, Surrey Hill, commencing at 20:00 hours (8.00pm).

Signalling Alterations

The following alterations were published in WN 11/07 to WN 28/07 and ETRB A circulars. The alterations have been edited to conserve space. Dates in parenthesis are the dates of publication, which may not be the date of the alteration.

23.03.2007 **Craigieburn** (SW 76/07, WN 13)

On Friday, 23.3., pedestrian gates were provided at the Down end. The gates are controlled by a Grade Crossing Predictor which is configured to act as a motion sensor so it is not influenced by train speed. The GCP operates the gates on the Broad and Standard gauge lines.

25.03.2007 **Kooyong** (SW 69/07, WN 12)

On Sunday, 25.3., the tramway discs (11 and 12) will be replaced by LED light signals. An indicator was provided in the signalbox to repeat the light signals.

(27.03.2007) **Maryborough** (WN 12)

Diagram 64/07 was issued.

(27.03.2007) **Echuca** (SW 75/07, WN 12)

Operating Procedure 119 ("Operation of Sprinter Service") is replaced by the following.

119 Echuca

Echuca is an Intermediate Train Order Terminal Station. It will be attended for all through movements between Bendigo and Barnes, and for movements to or from the Toolamba line.

Stop boards are provided on each side of the Murray Valley Highway on the Toolamba line. These restrict trains to 10 km/h until the locomotive is clear of the crossing. The Down Board also requires the Driver to obtain permission before passing the board. A Location Board is provided 2500 metres from the Down Stop Board on the Toolamba line.

Driver in charge conditions will apply for return Passenger trains between Bendigo and Echuca, provided there is no opposing move, or a move from the Toolamba line. These conditions will only apply for the operation of one train, after which the Signaller must attend.

Proceed and Return Train Orders may be issued between Bendigo - Echuca, Echuca - Moulamein and Echuca - Deniliquin.

29.03.2007 **Maryborough** (SW 67/07, WN 17)

On Thursday, 29.3., flashing lights were provided at Denherts Rd (217.862 km) on the Ballarat line. The lights are operated by a level crossing predictor and remote monitoring is provided. Diagram 64/07 replaced 38/06.

31.03.2007 **Jewell** (SW 71/07, WN 17)

On Saturday, 31.3., new software was installed at Coburg to support traffic light co-ordination at Park Street and Dawson St.

01.04.2007 **Eaglehawk** (SW 72/07, WN 12)

On Saturday, 31.3., and Sunday, 1.4., the flashing light units at Hopkins Ave will be converted to LED.

02.04.2007 **Train Operation Notices** (SW 85/07, WN 13)

Commencing Monday, 2.4., Train Operation Notices (TON) will commence to be issued. These will be issued by the Operations Co-ordinator or Senior Train Controller and will be authorised by the Operations Manager. They will cover such issues as:

* amendments to the Network Service Plan
* permanent speed restrictions
* signalbox hours and signalled location attendance hours
* amendments to signalbox/control panel signaller manuals
* redirection of trains
* network access for infrastructure activities or operations activities

Safeworking (SW) circulars will continue to be issued by the Manager Network Safety and will cover

* policy changes
* changes to safeworking arrangements, including new or amended signalling diagrams and alterations to safeworking system operations
* signalling alterations (temporary and permanent)
* specially authorised safeworking arrangements
* amendments to the Book of Rules and Operating Procedures
* safety critical information.

04.04.2007 **West Tower** (SW 85/07, WN 16)

The notice board at the Down end of the Moonee Ponds Ck bridge lettered 'Trains proceeding to 190 are to obtain permission from the Signaller West Tower" was relocated to the Up end of the bridge. The notice board advising train crews approaching South Dynon Loco Depot to change radio channels was altered to show Channel 6. Amend Diagram 78/06.

12.04.2007 **Berwick** (SW 81/07, WN15)

On Thursday, 12.4., pedestrian gates were provided at Clyde Road (44.322 km).

15.04.2007 **Richmond** (SW 79/07, WN 15)

On Sunday, 15.4., co-acting signals were provided for Automatics L71 and H71. They are located at the Down end of Nos 9 & 10 platforms. Amend Diagram99/06.

(17.04.2007) **Anstey** (SW 80/07, WN15)

Pedestrian gates have been provided at the West St foot crossing (7.785 km) on the Up side of Anstey.

21.04.2007 **Somerton** (SW 86/07, WN 15)

On Saturday, 21.4., the mechanical insulated rail joints on the crossover leading to the PN sidings will be replaced by glued insulated rail joints.

22.04.2007 **Caulfield - Carnegie** (SW 85/07, WN 15)

Between Saturday, 21.4., and Sunday, 23.4., pedestrian gates were provided at Cosy Gum Rd foot crossing (12.839 km) on the Down side of Caulfield.

23.04.2007 **Oakleigh** (SW 83/07, WN 15)

Between Friday, 20.4, and Monday, 23.4., Points 43 and Crossover 51 were renewed as tangential points with claw locks.

23.04.2007 **Clayton - Westall** (SW 84/07, WN 15)

Between Friday, 20.4., and Monday, 23.4., pedestrian gates were provided at Pullyn St foot crossing (20.825 km) and Wordsworth Ave foot crossing (21.891 km) on the Down side of Clayton.

(24.04.2007) **Moe** (TON 10/07, WN 16)

Commencing immediately, Signallers must select the 'stopping' mode for all Up movements from the single line to the South Line. This will reduce the delays to road traffic at Lloyd St.

28.04.2007 **Ringwood East - Mooroolbark** (SW 91/07, WN 16)

On Saturday, 28.4., pedestrian gates were provided at Alto Ave (30.770 km) between Ringwood East and Croydon, and Surrey Rd (31.986 km) between Croydon and Mooroolbark.

29.04.2007 **Beaconsfield - Berwick** (SW 93/07, WN 16)

On Sunday, 29.4., D1470 was converted to LED.

29.04.2007 **Heathmont** (SW 92/07 & 98/07, WN 16 & 17)

On Sunday, 29.4., pedestrian gates were provided at the Up end of the platforms (28.023 km) and Up Automatic L870 was altered to approach operation for stopping trains. The Signaller, Ringwood, is now required to select Stopping or Express for Up trains departing from No 2 Track or the Stabling Sidings.

(01.05.2007) **Somerton - Blue Circle Siding** (TON 35/07, WN 17)

Train Operating Data for this section has been added to the Network Service Plan.

(01.05.2007) **Morwell - Morwell Briquette Siding** (TON 35/07, WN 17)

Train Operating Data for this section has been added to the Network Service Plan.

03.05.2007 **Eaglehawk - Inglewood** (TON 41/07, WN 18)

Commencing Thursday, 3.5., the points at Eaglehawk and Inglewood will be secured for the primary corridor and an ongoing Track Warrant issued for the section Eaglehawk - Inglewood. At least 7 days notice must be provided prior to any train operating over the line.

04.05.2007 **Victorian Regional Rail Network** (SW 96/07, TON 42/07, TON 52/07, WN 18 & 19)

From 1415 hours, Friday, 4.5., the Intrastate Victorian regional rail network will be transferred from Pacific National to V/Line Passenger p/l. There will be no changes to the Rules or Operating Procedures. The North Geelong Grain Loop and associated area became the responsibilty of Vline Regional Network and Access.

05.05.2007 **Bell** (SW 100/07, WN 18)

On Saturday, 5.5., pedestrian gates were provided at Showers St (11.368 km). The pedestrian gates are interlocked with Up Home BEL107. Two additional track circuits were indicated on the Bell panel (T323T and 109T), together with an alarm. The alarm will show a flashing red light if the gates do not close within 25s on the approach of a train, or if the gates continue to operate for more than 5 minutes. Amend

Diagram 133/06 (Northcote - Reservoir).

06.05.2007 **Waurn Ponds** (SW 94/07, WN 17)

On Sunday, 6.5., the illuminated 'A' on Signal A was replaced by a LED.

06.05.2007 **Rosanna** (SW 101/07, WN 18)

On Sunday, 6.5., traffic light co-ordination was provided at Lower Plenty Rd.

(08.05.2007) **Nth Bendigo - Echuca** (SW 97/07, WN 18)

Diagrams 34/07 (Nth Bendigo - Elmore) and 36/07 (Rochester - Echuca) replaced 20/01 (Epsom - Echuca) as in service.

(08.05.2007) **Seymour** (SW 97/07, WN 18)

Diagram 32/07 replaced 06/01 as in service.

(08.05.2007) **Seymour - Tocumwal** (SW 97/07, WN 18)

Diagrams 38/07 (Nagambie - Toolamba), 40/07 (Mooroopna - Shepparton), and 42/07 (Congupna - Tocumwal) replaced 22/01, 26/88, 24/04 (Mooroopna - Tallygaroopna), and 16/06 as in service.

12.05.2007 **Brooklyn** (SW 99/07, WN 19)

On Saturday, 12.5., the E pattern (Fortress) Annett lock on the lever for Points A was replaced by an A pattern Annett lock. Operating procedure 20 was reissued, but the method of operation remains the same.

12.05.2007 **Broadmeadows** (SW 113/07, SWP 5/07, WN 19)

On Saturday, 12.5., the unit lever control panel was replaced with a Westcad system interfaced to the existing Westrace interlocking. Operating Procedure 28 was replaced by a new procedure covering the failure of points or signals. The Down Starting signal (BMS521) was relocated 64 metres in the Up direction. Up Repeating E654 was relocated to a cantilever mast 38 metres in the Up direction and a co-acting signal was provided on the right hand side of the running lines. Amend Diagram 24/00 (Glenbervie - Somerton).

12.05.2007 **Chelsea** (SW 113/07, WN 19)

On Saturday, 12.5., pedestrian gates were provided at Golden Ave foot crossing (34.123 km). Amend Diagram 7/07 (Bonbeach - Frankston)

13.05.2007 **Dandenong** (SW 114/07, WN 19)

On Saturday, 13.5., Points 602 were converted to claw lock operation.

(15.05.2007) **Main line access** (TON 49/07, WN 19)

The permission of the Train Controller must be obtained prior to a signal being cleared for a freight or light engine movement to access the main line at all Victorian locations. This includes trip movements, but excludes local shunt movements.

(15.05.2007) **Oakleigh** (SW 118/07, WN 19)

Commencing forthwith, the Express push button is to be operated for all Up trains when Oakleigh is switched in.

16.05.2007 **Ballarat - Ararat** (SW 101/07, WN 20)

The Ballarat - Ararat Train Staff has been withdrawn for repairs and a temporary Train Staff provided.

19.05.2007 **Box Hill - Blackburn** (SW 120/07, WN 20)

On Saturday 19.5., the following signals were renumbered to reflect their actual location: L506 to L508; L505 to L511, L518 to L516, L513 to L521, L534 to L532, and L541 to L539.

Up Home BOX301 at Box Hill and Up Automatic BBN203 at Blackburn were converted to LED. The route indicators on Down Home BBN302 and BBN302P were converted to an 8" LED type.

20.05.2007 **Dandenong** (SW 123/07, WN 19)

On Saturday, 20.5., Points 617 were converted to claw lock operation.

21.05.2007 **West Tower - Engine Tracks** (SW 100/07 & 126/07, WN 19 & 20)

From Monday, 21.5., Dwarf 280 was fitted with a route indicator. This shows an arrow pointing to 9 o'clock for moves from the Down Engine Track to the Reversing Loop, to 10.30 for moves to the Up Engine Track towards Dwarf 184, and to 12 o'clock for moves to the Down Engine Track. Operating Procedure 11A was reissued. Diagram 33/07 (South Dynon) and 35/07 (Melbourne Yard) replaced 78/06 and 80/06 respectively.

(22.05.2007) **Avenel** (SW 103/07, WN 20)

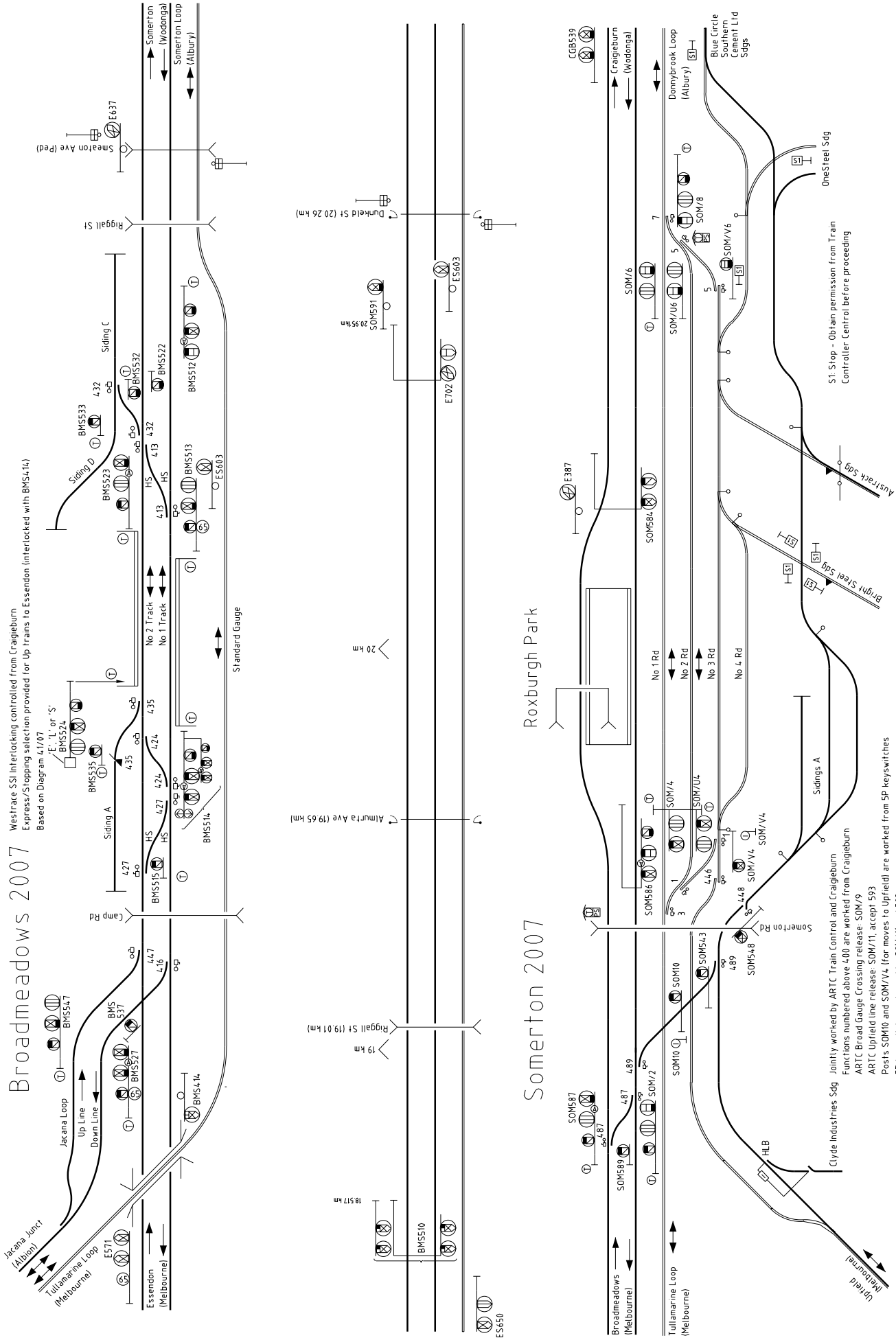
Diagram 46/07 (Avenel) replaced 96/06 as in service.

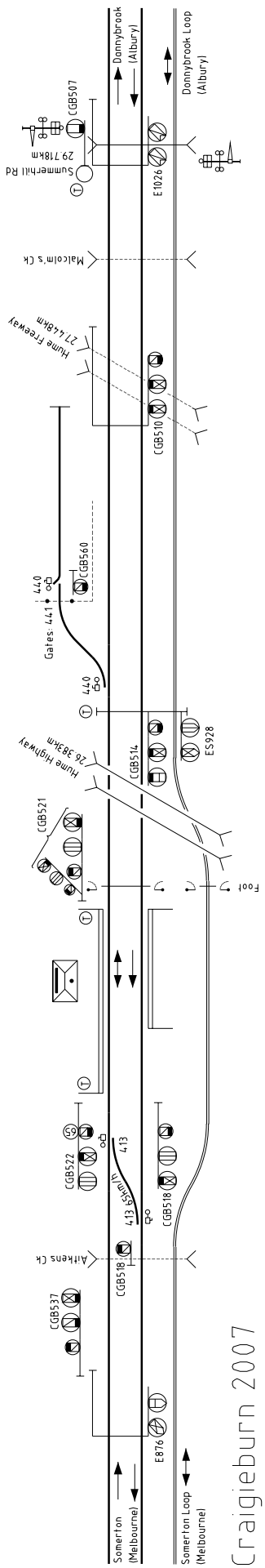
24.05.2007 **Broadmeadows - Somerton - Craigieburn** (SW 111/07 129/07 & 130/07, SWP 6/07 , WN 20)

From Thursday, 24.5., three position Automatic signalling was commissioned between Broadmeadows and Craigieburn. The Double Line Block system Broadmeadows - Somerton - Donnybrook was replaced by the section Craigieburn - Donnybrook.

The signalboxes at Broadmeadows (Westcad) and Somerton (Tappet frame) were abolished. A Westrace interlocking was provided to control the signalling at Broadmeadows, Somerton and Craigieburn. The interlocking will be operated from a Westcad system located at Craigieburn. All new signals are LED.

At Broadmeadows the Down Starting BMS521 was converted to a three position Automatic and renumbered E637. Up Repeating E654 was converted to a controlled Automatic and renumbered BMS510.


Broadmeadows 2007
Westrace SSI Interlocking controlled from Craigieburn
Express/Stopping selection provided for Up Trains to Essendon (interlocked with BMS414)
Based on Diagram 41/07
Jacana Junct (Albion)
Tullamarine Loop (Melbourne)
Jacana Loop
Up Line
Down Line
Essendon (Melbourne)
Camp Rd
Siding A
Siding C
Siding D
No 2 Track
No 1 Track
Standard Gauge
Riggall St
Sneaton Ave (Fed)
Somerton (Wodonga)
Somerton Loop (Albury)
Dunkeld St (20.26 km)
20 km
Altmurra Ave (19.65 km)
Riggall St (19.01 km)
19 km
18.517 km
Roxburgh Park
Somerton 2007
Craigieburn (Wodonga)
Donnybrook Loop (Albury)
Blue Circle Southern Cement Ltd Sdgs
OneSteel Sdg
Ausfrack Sdg
Bright Steel Sdg
No 1 Rd
No 2 Rd
No 3 Rd
No 4 Rd
Sidings A
Somerton Rd
Clyde Industries Sdg
Broadmeadows (Melbourne)
Tullamarine Loop (Melbourne)
Upfield (Melbourne)
S1: Stop - Obtain permission from Train Controller Central before proceeding
Jointly worked by ARTC Train Control and Craigieburn
Functions numbered above 400 are worked from Craigieburn
ARTC Broad Gauge Crossing release: SOM/9
ARTC Upfield line release: SOM/11, accept 593
Posts SOM10 and SOM/V4 (for moves to Upfield) are worked from SP keyswitches
SP keyswitches released by SOM/11 and 593



Illuminated letter 'A's were provided on Homes BMS512, BMS514, BMS523, and BMS 527. Crossovers 432 and 435 are self normalising.

At Somerton Signal posts E705, 22, 9, E798, 3, 21, 4, 19, 6, 11 & 5 were abolished. Posts SOM543, SOM548, SOM586, SOM 587, SOM589, SOM591, SOM854, and E387 were provided. The hand catch in the broad gauge sidings was equipped with a dual control point machine and numbered 448. Catch 448 and Crossovers 487 and 489 are self normalising. The Somerton Rd level crossing was abolished (the overbridge had been brought into service on 30.4.07). Roxburgh Park station will not open until suburban services commence in September.

At Craigieburn Repeating E1026, Automatic CGB539 & E876, Homes CGB537, CGB510, CGB514, CGB518, & CGB522 two position Starting CGB507, and Dwarfs CGB535 & CGB560 were provided. A CCTV camera was provided at the Down end of the station to allow the Signaller to confirm that Up trains have arrived complete within the Home signal. Crossover 440 is self normalising. Security gates are provided across the siding at Craigieburn. These operate either automatically with the setting of a route, or by selecting the appropriate icon on the monitor.

Diagrams 41/07 (Glenbervie - Somerton) and 82/07 (Craigieburn - Wandong) replaced 24/00 and 84/06.

Access to the broad gauge Somerton Sidings.

Remote control of Crossover 489 at Somerton will not be available until June, and the points are padlocked normal. The keys are held by the Safeworking Co-ordinator. A signaller will be located at Somerton operate the crossover under the direction of the Signaller Cragieburn. The Signaller Craigieburn must not allow a broad gauge train to depart from Jacana Loop for Somerton until permission has been obtained from the Train Controllers Centrol (that sufficient siding space is available), Metrol (path), and ARTC (that a path across the standard gauge is available and that the protecting Home signals have been secured at Stop). The Signaller at Craigieburn must place and secure Homes SOM586 and SOM587 at Stop, reverse and block Catch 448 and Crossover 487, and instruct the Signaller Somerton to reverse Crossover 489 and issue a Caution Order for Home SOM387. The Signaller Somerton is then to instruct the Safeworking Co-ordinator to reverse Crossover 489. The Signaller and Safeworking Co-ordinator are to ensure all the points in the route are lying in the correct position. When the train movement has been completed, Crossover 489 is to be secured normal and the Signaller,Craigieburn advised. The ARTC Train Controller is to be advised and normal working resumed. Drivers of broad gauge trains departing from Somerton must contact the Signaller, Craigieburn when their train is ready to depart. The procedure is then similar to that for the arrival of trains, except that permission of Centrol and Metrol is not required.

Existing Operating Procedure 28 (SWP 5/07) is replaced by a new Procedure governing the failure of signals at Broadmeadows, Somerton, & Craigieburn.

24.05.2007 **Eaglehawk - Inglewood** (TON 80/07, WN 21)

Normal working will resume over this section as from 24.5.07. TON 47/07 is cancelled.

25.05.2007 **Eaglehawk - Inglewood** (TON 82/07, WN 22)

From Friday, 25.5., the line between Eaglehawk and Inglewood will be booked out of service in order to comply with SW 76/06 due to no train movement to operate over the line for the forseeable future. The junction points at each end will be clipped for the primary corridor.

27.05.2007 **Hoppers Crossing** (SW 132/07, WN 21)

On Sunday, 27.5., Down Automatics G957 and GG957 were converted to tri-colour LED heads. A co-acting signal was provided for G957. The co-acting signal is provided on a separate mast on the right hand side of the East line. Amend Diagram 139/06 (Aircraft - Werribee).

27.05.2007 **Dandenong** (SW 133/07, WN 21)

On Sunday, 27.5., Points 607D were converted to claw lock operation.

28.05.2007 **Broadmeadows - Somerton - Craigieburn** (SW 130/07, SWP 6/07 WN 20)

From 0300 hours Monday, 28.5., Train Control responsibility will be transferred from Centrol to Metrol. The boundary between Centrol and Metrol will be the Down Starting CGB507 and Up Home CGB510.

At the same time the Signaller was removed from Somerton and management of the yard became the responsibility was transferred to the Train Controller Centrol. Operating Procedure 99 (SW 1124/01 and 1129/01) was re-issued.

(29.05.2007) **Brooklyn - Apex Quarry Siding** (SW 110/07, WN 21)

Operating Procedure 20 has been reissued to cover operation of the hand points in the siding leading to the Brooklyn Tip Siding.

(29.05.2007) **Somerton** (SW 104/97 &109/07, WN 21)

Pending completion of outstanding electrical work, a competent employee will be on duty for the operation of all broad gauge trains in the yard to assist the Train Controller with the co-ordination of moves. The employee will advise the Train Controller of the status of the roads.

The hand operated catch points in the standard gauge lead towards the Upfield line have been fitted with a dual control point machine and the CCW lever removed. The point machine has not yet been commissioned and the points must be hand operated when required under the direction of the Signaller and Train Controller Centrol.

02.06.2007 **Kilmore East - Seymour** (SW 108/07, WN 21)

From 0100 hours on Saturday, 2.6., until 0300 hours on Monday, 11.6., the broad gauge lines between Kilmore East and Seymour will be under absolute occupation to allow the rebuilding of the Dry Creek bridges. The absolute occupations will extend from Posts 9 at Kilmore East to Post 4 Seymour, and Post 6 Seymour to Post 10 Kilmore East.

The Down Home on Post 11 at Kilmore East was fixed at Stop. Baulks were provided in both the Up and Down lines adjacent to Post 12 and adjacent to Posts 9 and 10. Points 24 will be secured normal with a point clip. Home 6 at Seymour was fixed at stop and baulks provided in the Up line adjacent to the signal. Points 5 will be secured normal with a point clip.

Train services will terminate at Kilmore East. Down trains can be accepted under Rule 5 provided the line is clear as far as Post 9. For Up movements from the Down platform, the Signaller must clip the Annett locked crossover reverse and display a green hand signal.

The Apex Quarry services will continue to run in the following windows: M-F 1150 to 1400 and 2110 to 2240, and Sun 2000 to 2210. Before the Apex Quarry service leaves Broadmeadows, the absolute occupation between Posts 9/10 and Post 12 at Kilmore East must be returned to the Signaller.

06.06.2007 **Keilor Plains** (SW 147/07, WN 23)

On Wednesday, 6.6., the north side of the Taylors Rd crossing was closed to road traffic due to construction work on the rail underpass. The south side of the level crossing was widened and the boom barriers relocated.

07.06.2007 **Ballarat** (SW 111/07, WN 22)

On Wednesday, 6.6., and Thursday, 7.6., boom barriers and traffic light co-ordination was provided at Norman St (157.786 km) and Howitt St (158.597 km) on the Maryborough line. Both level crossings will be equipped with remote monitoring. Diagram 90/07 (North Ballarat - Linton Junction) replaced 22/04.

10.06.2007 **Somerton** (SW 149/07, WN 23)

On Sunday, 10.6., the signalling for the broad gauge crossing (ARTC release of Crossover 489) and Catch 448 were commissioned.

17.06.2007 **Alphington** (SW 152/07, WN 24)

On Sunday, 17.6., pedestrian gates were provided on the Up side of the Yarralea St crossing (10.591 km). Modifications were made to the warning times for Down trains at Yarralea St, and circuit alterations were undertaken to correct tail ringing issues at Perry St. Amend Diagram 111/06 (Dennis - Macleod).

17.06.2007 **Burwood** (SW 151/07, WN 24)

On Sunday, 17.6., pedestrian gates were provided at the foot crossing at the Up end of Burwood platforms (14.118 km). Amend Diagram 109/06 (Riversdale - Alamein)

(19.06.2007) **Burnley - Glen Waverley** (SW 153/07, WN 24)

Diagrams 115/06 (Heyington - Darling & Burnley Stabling Sidings) & 25/06 (East Malvern - Glen Waverley) replaced Diagrams 65/97 (Burnley Stabling Sidings), and 17/04 (Heyington - Glen Waverley) as in service.

21.06.2007 **Benalla** (SW 114/07 & 117/07, WN 24 & 25)

After the passage of Train 8310 on Thursday, 21.6., the following alterations took place for the commissioning of the new signalling.

Up Home BEN2 was fixed at Stop. The ST21 Master Key locks on the main line points B, C, and D were replaced with independent padlocks. The key of these padlocks will be held by the Operational Safeworking Supervisor at Benalla. The Westcad control panel at Centrol will be placed out of use.

The Operational Safeworking Supervisor will be resonsible for all signalling duties during the commissioning.

24.06.2007 **Keilor Plains** (SW 164/07, WN 25)

On Sunday, 24.6., the former pedestrian gates on the north side of Taylors Road were recommissioned as an access crossing for ABI Group construction staff.

25.06.2007 **Benalla** (SW 119/07, WN 25)

On Monday, 25.6., Benalla was opened as an Intermediate Train Order Terminal Station with the sections Riggs Creek Loop - Benalla - Bowser Block Point. A Through Train Order may be issued through Benalla on the primary corridor. Unless otherwise instructed, Down Through trains on the primary corridor must be issued with a Through Train Order. When a Down train for the Oaklands line, or to lock away at Benalla, has been issued with a Train Order to Benalla, any opposing train on the primary corridor must only be issued with a Train Order to Bowser Block Point. If it is required to cross at Benalla, a competent employee must attend to operate the points.

Down Distant BEN1 was provided opposite the existing Down Location Board (which will be abolished). Down Home BEN2 was provided 90 metres on the Down side of the Broken River Bridge. Up Home BEN2 was renumbered BEN3. Up Home BEN4 was provided 110 metres on the Down side of the Down end main line points. BEN4 is approach cleared when BEN3 is at Stop. The Up Distant BEN6 was renumbered BEN5 and became an operational signal.

Points B, C, and D secured by electric point locks released by V5PSW keyswitches. A V5PSW keyswitch was provided at Points B for the operation of the Nunn St level crossing. Emergency V5PSW keyswitches are provided to operate the Home signals, but only under the direction of Train Control

The Westcad control panel at Centrol was restored to use and to control the Home signals and release the main line points. A switching facility is provided to allow the control to be transferred between control rooms.

Diagram 104/07 (Benalla) replaced 98/06.

(26.06.2007) **Spencer St** (SW 157/07, WN 25)

A notice board lettered 'Do not stable trains beyond this point" has been provided at the Down end of No 2 Lay By siding.

(26.06.2007) **Kensington - Essendon** (SW 161/07, WN 25)

Diagram 53/07 (Kensington - Essendon) replaced 27/02 as in service.

(26.06.2007) **Newmarket - Flemington Racecourse** (SW 161/07, WN 25)

Diagram 51/07 (Flemington Racecourse Line) replaced 03/00 as in service.

(26.06.2007) **Prahan - Sandringham** (SW 161/07, WN 25)

Diagram 49/07 (Prahan - Sandringham) replaced 37/05 as in service.

28.06.2007 **Oaklands** (SW 118/07, WN 25)

On Thursday, 28.6., a hand locking bar was provided on the points leading to the Grain Corp siding. The key to the padlock is held by the siding operator. A hinged notice board lettered 'No entry into Siding' was provided to show when the siding is closed to rail traffic. A new Operating Procedure 105B was issued. The points must be secured for No 2 Road and the notice board displayed prior to loading or unloading operations being carried out.

01.07.2007 **Newport South** (SW 170/07, WN 26)

On Sunday, 1.7., Points 169 and Crossovers 173 and 177 were converted to Dual Control point machines and the emergency crank handle was abolished.

02.07.2007 **Werribee - Geelong** (SW 122/07, 123/07, 124/07 & 125/07, WN 26)

From Monday, 2.7., non TPWS equipped locomotives and track machines (including the EM100) can only operate between Werribee and Geelong after the passenger service has ceased for the day and before the commencement of the passenger service the next day (except as shown below). These non TPWS movements must be operated under absolute block conditions between Werribee - Lara - Geelong.

TPWS fitted rolling stock will operated as follows as the TPWS, track circuits, and interlocking is functioning normally. All controlled signals are to be operated manually (i.e. non fleeting mode). Prior to the Signaller at Werribee or Geelong clearing a controlled signal, the preceding train must have cleared the second section in advance (i.e. double block). (Originally, this was to require the section to be clear to the next Home in advance.) This may be checked by the panel indications. Should the panel indications fail, trains must not be signalled into a non-indicated section until the location is attended by a compentent employee and the preceding train has been verified as complete.

The following freight services in the Geelong area may be operated during passenger running hours under the conditions listed.

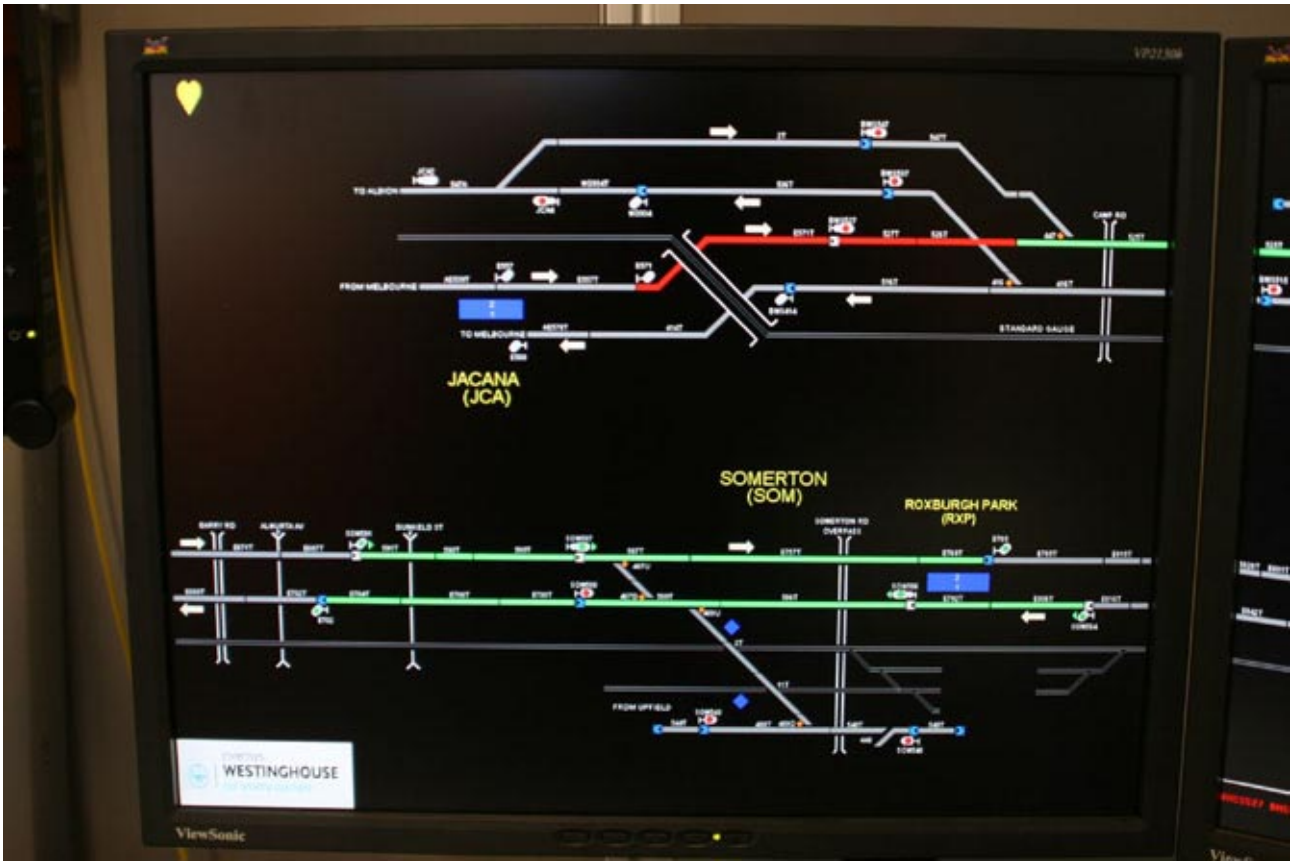
North Geelong to Corio and return. Prior to signalling a movement to Corio, the line must be clear to LAR22, or the route must be set into the Shell Siding and no opposing movement has been signalled past LAR6 or LAR36. A follow on movement must not be made until the train is in clear in the Shell siding and the points are set for the main line. Prior to signalling a movement from Corio, the line must be clear to its destination at North Geelong, and no movement must be signalled past LAR 6 or LAR36. A TPWS equipped follow on movement may be signalled from Lara.

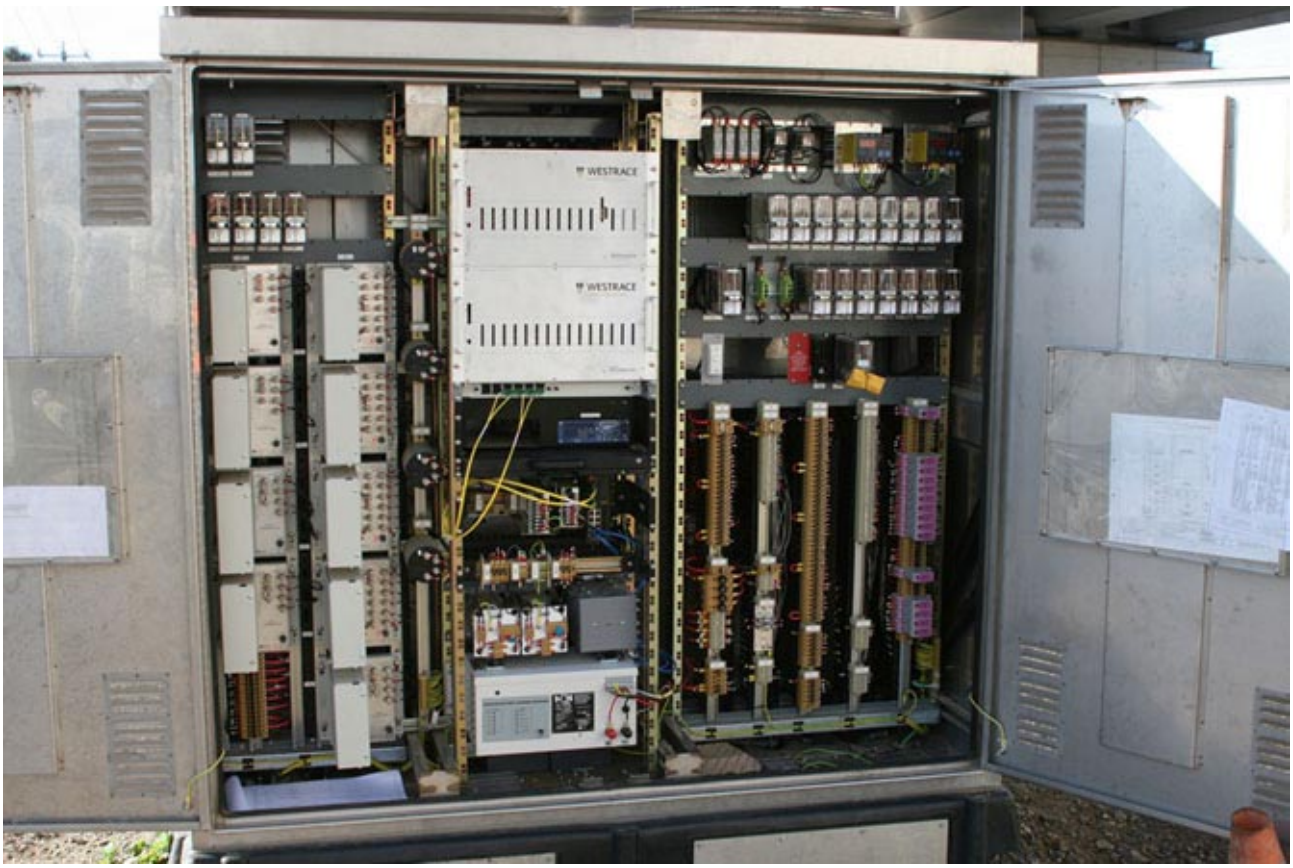
North Geelong to North Shore and return. Prior to signalling these movements in either direction, the line must be clear between North Geelong and Corio, and no cross or follow on movements are permitted until the movement has completed its journey and the siding points are set for the main line.

The new signalling between Broadmeadows and Somerton is noted for its substantial cantilever signal masts. The upper photo shows Up Automatic SOM564, on the Down side of Somerton. The masts are provided to support the Up broad gauge signals and appear to have been designed to avoid placing any structures between the broad and standard gauge lines, or passing over the standard gauge line. Note that the overhead stanchions have a similar construction. The cantilever masts are all to a common design with cages and brackets for both Up and Down signals. (Below) It is interesting to compare Up Home SOM586 at Somerton, with the adjacent standard gauge signal bridge erected 25 years ago. The signal bridge looks positively spindly, and the maintenance access is much more exposed. Notice, also, that the new signal lacks the white border around the signal targets. Current signal sighting guidelines provide for white borders only on searchlights and tri-colour LEDs in the metro area. In the background is the new

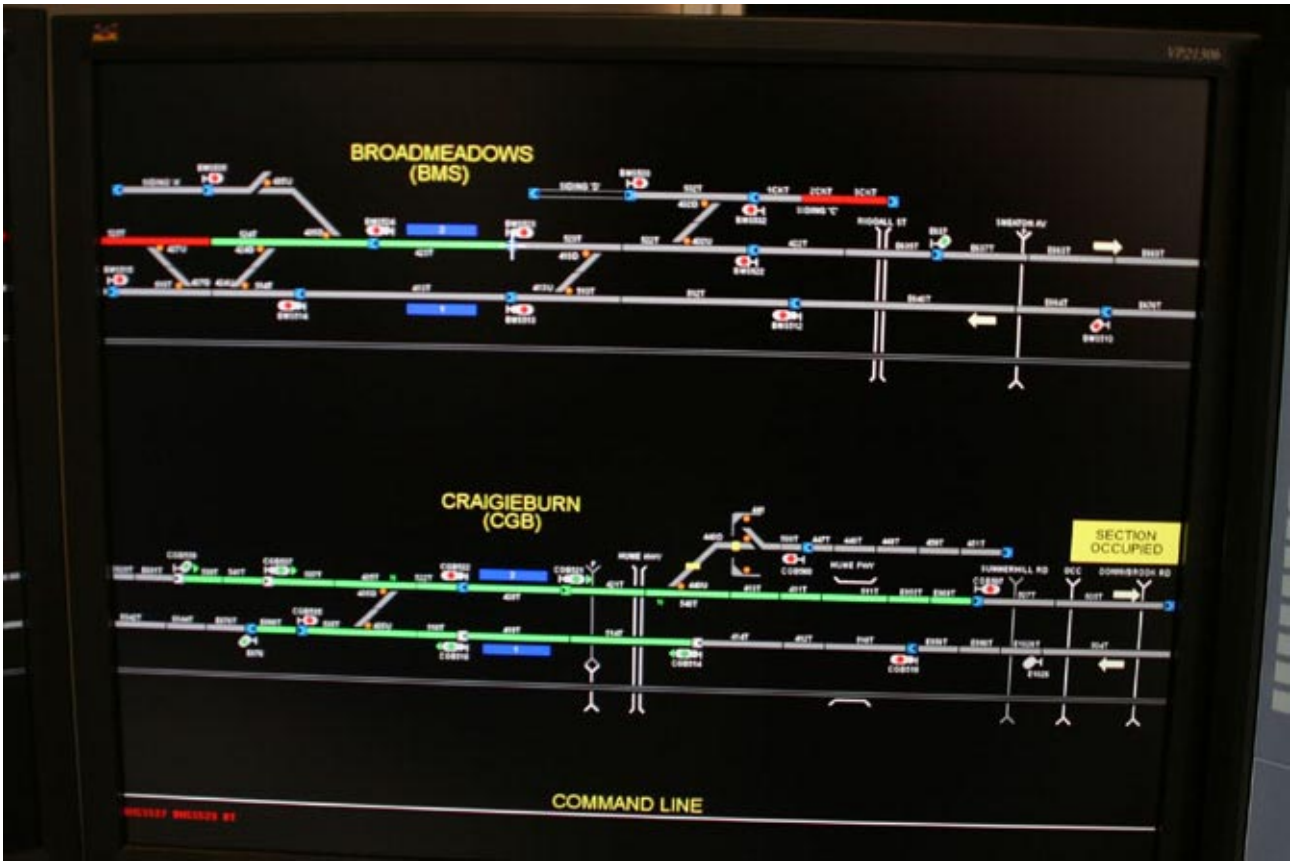
Somerton Road overpass. Somerton box is in the background, boarded up and out of use. (Above) A signalbridge was provided on the Down side of Craigieburn instead of a bracket mast. Possibly because this bridge will also carry the standard gauge Up Automatic ES928 (in this view the new head turned to one side and covered with plastic and the original mast was still in service). On the right can be seen the new stabling siding, with the Sydney Rd overbridge and Craigieburn station in the background. (Below). Craigieburn's Up Repeating signal has the standard bracket post, and can show both normal and medium speed indications. On the other side of the level crossing can be seen the two position Down Starting signal for the block section to Donnybrook. On the right is the pole line with the 440V power, CTC circuits, station phone lines, and Double Line Block wires. All photographs Chris Gordon.

The new signalling between Broadmeadows and Craigieburn (inclusive) is controlled by a Westinghouse WestCAD system located at a new signalbox at Craigieburn. The upper photo shows the general arrangement of the new box. The 'panel' is the two LED computer monitors at the left. Routes are set up using the mouse or computer keyboard using an NX interface. To the right of the 'panel' is a screen containing warnings. The three of the four screens arranged in a rectangle are CCTV systems. The bottom left hand is used to check the 'end of train' marker on Up broad gauge trains so that 'Train Arrival' can be sent. The top left screen is the Tran Number Transmitter. At the extreme righthand end can be seen the Winter's Double Line Block instrument for the section to Donnybrook. Below are close-ups of the two 'panel' screens. Broadmeadows yard is shown across the top of both screens, with Somerton at the bottom left and Craigieburn at bottom right. At the top left of the left screen can be seen the





'heartbeat'. If this symbol flashes regularly, the Signaller can be confident that the computer system is updating the display to reflect the situation in the field. Note the 'Section Occupied' sign at the bottom right. When a train is signalled past the starting signal a dialog box appears asking "Do you have line?". When the train passes the signal the "Section Occupied" sign appears. Clicking on the sign results in the Signaller being asked if Train Arrival has been received. Above is SOM2ZB equipment case at Somerton which replaced the 1961 relay interlocking for the Standard Gauge loop. The grey boxes on the left are PSO III track circuits (all the standard gauge track circuits were replaced so that they were immune from the traction power). The Westrace is the top middle and underneath it is the fibre optics and power supplies. On the right are relays, terminators, and surge arrestors. All photographs by Chris Gordon.



Bentleigh

Bentleigh station is situated at 9 miles 40 chains 4 links from Melbourne, just north of Centre Road. It was opened for passenger traffic with the line to Mordialloc on 20 December 1881 (the official opening had been the previous day) and was initially known as 'East Brighton'.

It appears that few facilities were provided on opening day. The hand gates at Centre Road and adjacent Gatehous No 5 were in existence, however, passenger facilities were probably restricted to a portable. The gatehouse was situated on the Down side of the line on the Frankston side of the crossing. Shortly after opening, a contract was let to R & J Shimmin to erect station buildings. The contract was gazetted on the 17 February 1882 for £830-0-0. By 3 December 1885 East Brighton was open for Light Goods. The goods siding was almost certainly located on the Up side of the line behind the platform.

By the issue of the Service Time Table of 3 April 1882 the single line to Mordialloc was shown as being worked by Train Staff and Ticket with the sections North Road (Ormond) - East Brighton - South Brighton (Moorabbin). When the line was duplicated between Caulfield and Mordialloc on 9 December 1888, Staff and Ticket gave way to double line block on the same sections. On 14 November 1894 Glen Huntly and Ormond were closed as block posts and the section became Caulfield B - East Brighton.

By the 1 July 1898, East Bentleigh had Up and Down Home and Starting signals (but no Distant signals). No interlocking was provided and the signals were worked by quadrants, probably on the Up platform. Two crossovers were provided, one at each end of the yard. Up and Down Distant signals were provided on 26 January 1915. At the same time the Home signals were relocated to be around 50 yards out from the platform.

East Brighton was renamed Bentleigh, after the local politican Thomas Bent, on 1 May 1907.

Electrification caused some minor alterations at Bentleigh. The overhead was energised at the beginning of April 1922 and the electric service to Mordialloc commenced on 6 June 1922. Bentleigh had been closed to goods on 1 June 1922. Given the close relationship with the dates, it would seem that the closure had something to do with the electrification, but exactly what is not known. The goods siding was abolished at the end of September 1922. It appears the Up end trailing crossover was removed at around the same time. The Down end crossover remained, but was not wired until the beginning of March 1925.

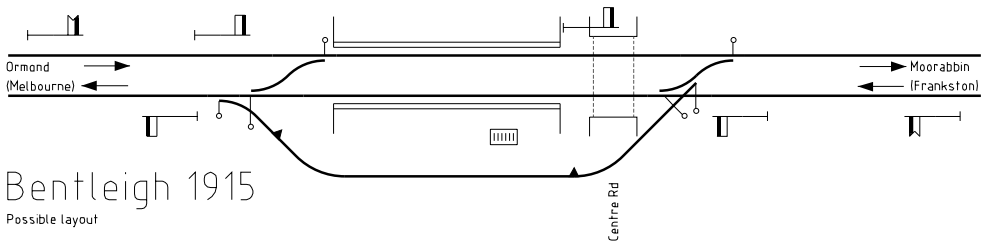
On the 15 August 1924 interlocked gates replaced the hand gates at Centre Road. The gates were worked from a 16 lever A pattern frame in a new signal bay on the Up platform. The frame also worked the signals, but not the trailing crossover at the Down end. This remained worked by hand levers, and completely unconnected with the interlocking, until it was spiked out of use in December 1943. The crossover was removed in mid August 1944.

On 15 May 1947 the Metropolitan Superintendent wrote to the Stationmasters at Bentleigh and Moorabbin:

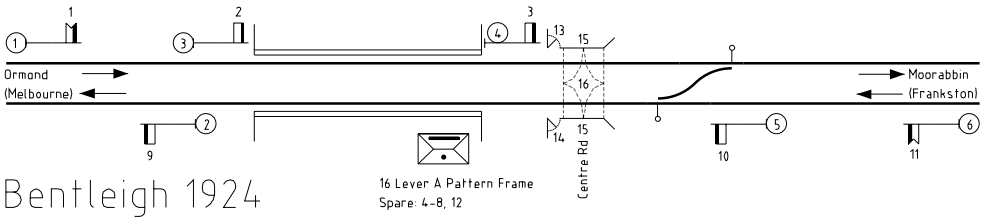
> Previous re question raised by Signalman Campbell of Moorabbin regarding the method of obtaining line clear. In view of the short sections and in order to provide for uniformity the provision of Clause (VI) of rule 3, Appendix IV [...] should be complied with by all concerned.

Clause VI required the Signalman to ask 'Is Line Clear' from the signalbox in advance as soon as he had granted it to the box in the rear.

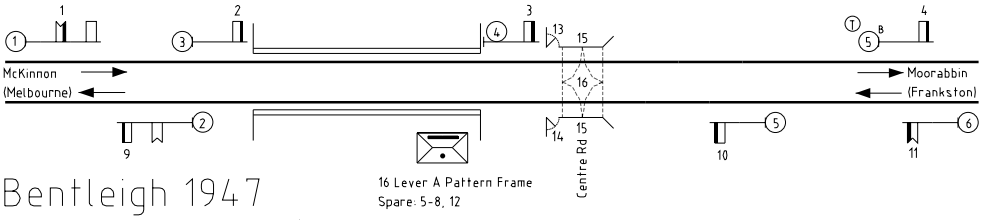
A Down Starting signal was provided on 29 October 1947 on a new post 5B situated 422 yards in advance of Post 4. (Technically, Bentleigh had not previously had a Down Starting signal as Post 4 protected the level crossing and was classified as a 'Departure Home' signal in the 1930 Book of Signals.) The new signal meant that a Down train could draw forward, waiting line clear, and the following train could then be accepted from the station in the rear. A telephone was provided at the new post to allow the Driver to communicate with the Signalman in the case of detention at the signal. On 7 November 1947 the Safeworking Officer requested the General Superintendent to appoint an employe



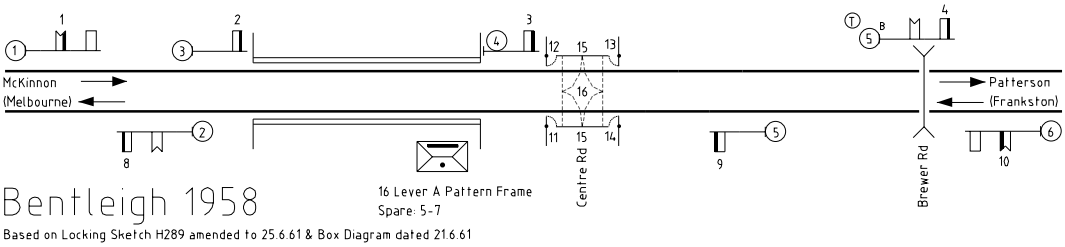
Bentleigh 1915
Possible layout

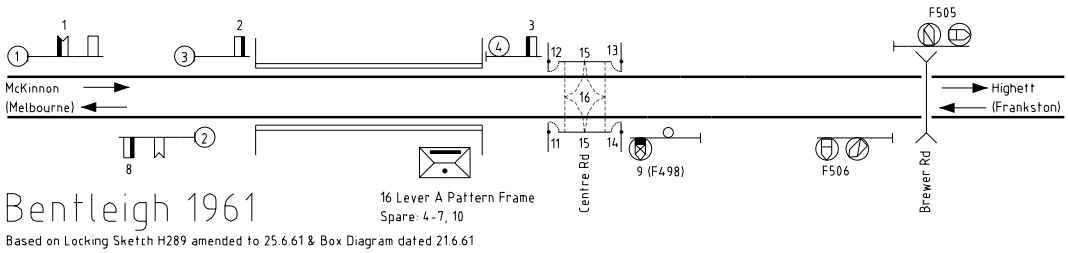


Bentleigh 1924
Based on Locking Sketch H289 amended to 25.6.61



Bentleigh 1947
Based on Locking Sketch H289 amended to 25.6.61





to act as a groundsman (fog signaller) for Post 5B. One was appointed in mid December 1947. The relevant instruction read:

> The Groundman must place himself so as to clearly see Post No 5B, and at once inform the Signalman when a Down train has proceeded on its journey and the last vehicle has passed clear of Signal Post No 5B. The telephone at Post No 5B is to be used for the purpose.

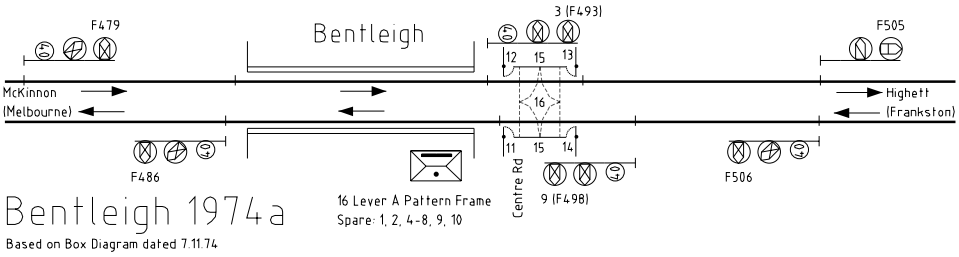
Controlled wickets were provided on the Down side of Centre Road on 23 December 1948. These were worked by the same levers that worked the existing wickets on the Up side of the road. Roughly a decade later, the heavy wooden 'slamming' wicket gates were replaced by lightweight tubular steel and wire mesh wicket gates on 13 August 1958. These normally stood open and were closed by the wicket levers. Each of the four wickets was now worked by a separate lever, and this required the Up signals to be renumbered.

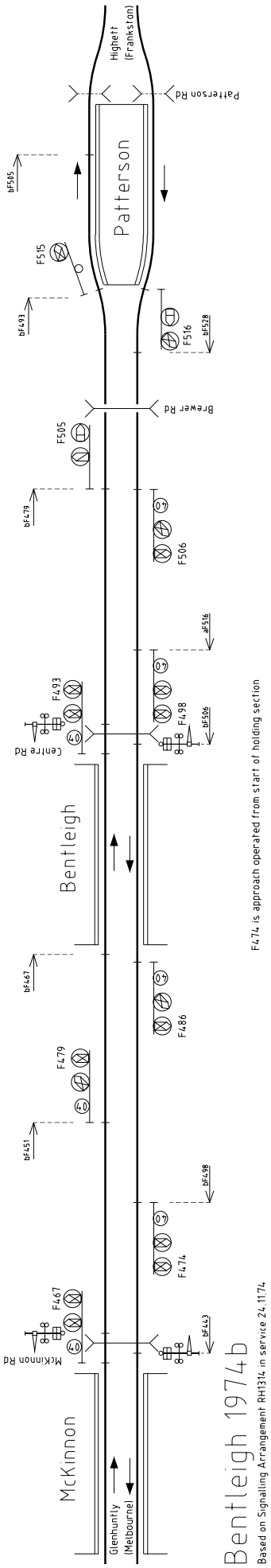
The Bentleigh - Moorabbin block section was divided on the 17 April 1956 when Patterson signalbox was opened. On 19 January 1958 three position automatic signalling was provided between Patterson signalbox and Highett in conjunction with the grade separation at Moorabbin. The Up Starting at Patterson was equipped with a reverser, and Bentleigh's Up Distant, located on the same post had to be similiarly equipped. The short block section between Bentleigh and Patterson was converted to three position automatic signalling on 25 June 1961, allowing Patterson signalbox to be closed after a life of just over five years. In conjunction with this change, all the mechanical signals at Bentleigh on the Down side of Centre Road were abolished. The Down Home on Post 5 was replaced by a controlled Automatic worked by lever 9 to protect the level crossing gates. Reversers were provided on the Up Home protecting the level crossing, the Up Distant, and the Down Starting.

The block working on the Up side of Bentleigh remained in service until 10 November 1974 when three position automatic signalling was provided between Glenhuntly and Bentleigh. The new signals showed four aspects and were supposed to show an illuminated '40' indicator, but it appears that this feature was not provided for around 16 months. Automatics F498 and F506 were replaced or equipped with new signal heads to show four aspects. The signalbox was retained to temporarily work the interlocked gates, wickets, and protecting signals. Temporary controls were provided on Down Automatic F493 and Up Automatic F498. These only remained until 24 November 1974 when boom barriers were provided at Centre Road and the box was abolished.

The abolition of block working appeared to be in conjunction with works to provide a third track between Caulfield and Moorabbin. The Down line was slued to serve a new Down platform on 24 August 1975 and Automatic F493 was relocated to suit. This allowed a new Up platform and track to be constructed partially on the former Down line. The new Up platform was brought into service on 15 February 1976 and Automatics F486 and F498 were relocated to suit the new alignment. The Down line between Ormond and Bentleigh was slued to a new alignment on 21 March 1976. Automatics F467 and F479 were relocated to suit the new line. It appears that the illuminated '40' indicators was commissioned at this time. The Up line between Ormond and Bentleigh was similarly slued on 10 October 1976 and Automatics F474 and F486 were relocated to the new alignment. The final work carried out was the sluing of the line between Bentleigh and the Brewer Road overbridge. The Up line was slued to its final location on 19 June 1977 and the Down line on 17 August 1977. Post F505 was relocated to the new alignment.

With this relocation of the track, work to provide a third track ceased and did not recommence until the eighties. On 21 February 1987 the line between Ormond and Bentleigh was resignalled. The new signals were generally around the location of the older signals, although Post F493 was relocated 12 metres in the Up direction. The illuminated '65' indicators (the former '40' indicators) were removed from



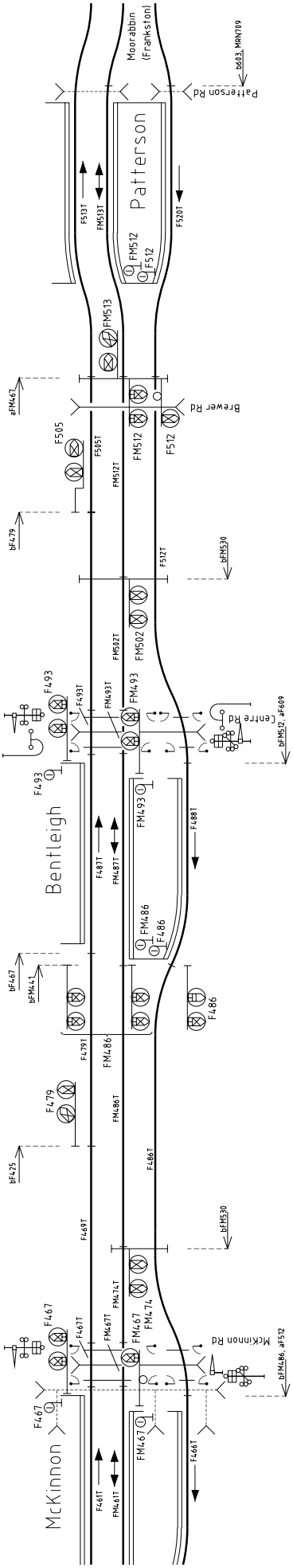


Bentleigh 1974b

Based on Signalling Arrangement RH1314 in service 24.11.74

F474 is approach operated from start of holding section

Centre Road
Up/Down Express/Stopping selection by Caulfield
Down stopping control from F487T down (216m 50s) or FM487T down (236m 50s), Down line holding from F469T down (554m 32s), Centre line holding from FM474T down (574m 37s)
Down express control 5s after F469T or FM474T down (765m 29s), holding from F447T or FM460T down (650m 34s)
Up stopping control from F512T or FM512T down (560m 32s), holding 20s after F520T or FM413T down (270m 35s)
Up express control 8s after F520T or FM513T down (820m, 29s), holding 9s after 609T or 603T down (550m@70km/h 25s)



Bentleigh 1986

Based on Signalling Arrangement MS2256 amended to 26.6.98

F493 & FM493 interlocked with boom barrier.
For stopping train when booms vertical: clears when booms horizontal & platform track occupied
For stopping train when booms horizontal: clears when holding section occupied
Express train: precleared by progression system
5P keyswitch normal to reverse: interlocked with booms when control or holding sections occupied

FM502 interlocked with boom barrier
Stopping train: clears when FM513T is occupied
Express train: precleared by progression system
Up holding and part of the control cut out for a following train until the first train has occupied FM486T

F512 & FM512 interlocked with McKinnon Rd boom barrier
For stopping train when booms vertical: clears when platform track occupied occupied for 20s
For stopping train when booms horizontal: clears when holding section occupied
Express train: precleared by progression system
5P keyswitch normal to reverse: interlocked with booms when control or holding sections occupied

all signals, including Automatics F493, F498, and F506 on the Down side of Bentleigh. Automatic wicket gates were provided at Centre Road.

The new Down line was provided between Bentleigh and Moorabbin on 23 March 1987 and the former Down line became the Up line (and would eventually become the Centre line). The permanent signalling on these two lines was brought into use on the same date except the Down signals on the future Centre line. The signalling on the new Up line was commissioned on 27 June 1987, and Up trains were altered to run on this line as from 0600 hours the following day. The former Up line (now the Centre line) was then taken out of use until 5 July 1987 when it was restored as a bi-directional line with the permanent signalling.

In the succeeding twenty years there has been very little alterations at Bentleigh, and most of these have concerned the Centre Road level crossing. On 8 March 1995 it was recorded that additional pedestrian gates were provided for the Centre line. Further details are not known, but this probably marked the provision of two wickets between the Up and Centre lines. It was probably around this time that the subway to the island platform was filled in. In late November 2005 the pedestrian crossings at Centre Rd commenced to be upgraded. A sign attached to the fencing stated:

Bentleigh Pedestrian Crossing - Trial Site
Cost: $1.2 million
Funded by: Department of Infrastructure
Project Manager: VicTrack
This pedestrian crossing is a State Government trial site. It is the first of its kind in Victoria to feature visual active warning protection and emergency escape gate latches. Safety features at this site include:

* 'Another Train Coming' and 'Red Man' electronic warning signs
* Emergency escape gate latches
* Rubberised surfaces
* Wider escape areas and gates
* Compliance to Disability Access Standards

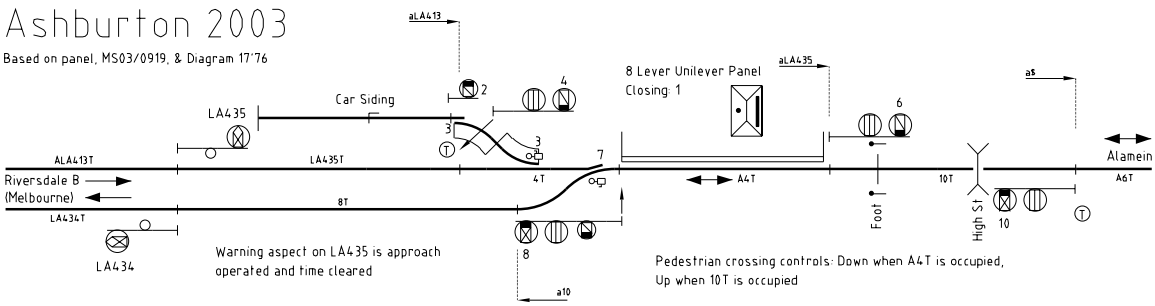
This site is being monitored via CCTV to determine the effectiveness of the new technologies.

The upgrading took place over an extended period. The holding time for the level crossing was reduced from 35 seconds to 25 seconds on 25 June 2006. The electronic warning signs were provided on 30 July 2006 and take the form of illuminated red pedestrian symbols and 'Another train coming' signs. The illuminated red pedestrian symbols are illuminated when the pedestrian gates begin to close until the train clears the crossing. The 'Another train coming' sign will illuminate when the crossing is operating and a second train strikes the approach track. It will remain illuminated until the second train clears the crossing. Finally, in mid December 2006 a new type of emergency gate was provided. This gate locks when it is closed, and requires a foot or hand button to be pressed on the railway side to unlock. Higher, unclimable, fencing was also provided.

The upgraded pedestrian crossing was in response to several fatalities at suburban level crossings. In particular, a young woman died at Centre Road when she ran through the emergency gate into the path of a second train. The effectiveness of the equipment is mixed. On one occasion I saw two young men approach the crossing when a Down train was standing in the platform. They tried the emergency gate, found it locked, and waited patiently at the closed gate for the train to pass. At the same time, however, a older male simply walked onto the road and crossed over the line.

Errata

Noel Reed queried the 2003 diagram of Ashburton published in the history of that station in Volume 28 No 2. He noted that Home 4 could not display a Normal Speed Warning if Home 6 was at Stop. He is, of course, quite correct and the correct (current) diagram appears below.



Letters to the Editor

Ray Layton writes:

Refering to Page 42, May issue of Somersault down towards the bottom of the second column.

The small shift of the insulated joint on the down side of the crossing was done as a result of a staff suggestion. The problem that was a regular occurence was for down PM Frankston express trains to be checked and held at Ormond post 6 awaiting line clear through McKinnon towards Bentleigh. These trains, by that stage usually 8 car Taits, would stop with the rear of the train clear of the crossing but only just still on the track circuit thus holding the North Road booms down. I happened to be a regular traveller usually inthe van of these trains, the two that caused the most problems were the 5.00pm and 5.09 which ran express in this section and observed the problem many times.

I was with the works branch at this time and made the suggestion, from memory I think I was given $10 for my trouble.

Les Jean writes:

A rail friend gave me some papers which included your SOMERSAULT Jan 07 edition.

I was interested to note the arrangement for protection of the 1500VDC rail supply and the 600VDC tramway supply interface. On a number of occasions I took part in investigations of what appeared to be high voltage feedback to the Glenhuntly Tram Depot blowing all 100VDC lighting and anything else connected to the overhead supply, such as tram compressors. I am a bit rusty on the detail but recall that a tram having entered the isolated crossover by error was able to raise the leading trolley pole with the trailing poll still connected thus connecting the rail supply to the tram supply. On all occasions this was seen to be the cause of the fault! I think that a Depot circuit breaker was installed to prevent recurrences. Perhaps the Section isolators at crossover might be a bit carbonised?

Two photographs from the North East. (Above) No 7 Down Tocumwal passenger has just arrived at Toolamba on 15 November 1972. In those days, Toolamba had an extensive yard fully mechanically interlocked from the 58 lever signalbox provided in 1916. Post 7, on the left, was typical of Victorian practice. The two arms apply from No 2 Road (next to the Passenger), with the higher arm applying to Shepparton and the lower arm applying through the crossover to Echuca. Note that the post is well away from the track that it signals. The discs under the bracket apply from the remaining goods roads (Nos 3 to 6) through the double compound. The disc on the right applies to the Echuca line, the top disc on the left applies along the straight to the dead end Siding B, and the bottom right disc to the Shepparton line. Today, Toolamba is still the junction for the line to Echuca, but all other facilities have been removed except for a single loop siding. (Below) Two days earlier, on 13 November 1972, a Y class on No 177 Down Roadside Goods shunts Mangalore, the junction for the Goulburn Valley line. The Y class has been signalled forward into the single line section hauling a single L sheep van which will be placed at the stock race which can just be seen to the right of the loco. Today the two lines still diverge at the site of Mangalore, but the actual junction is at Seymour and nothing remains of the station. Both photos David Langley.