Sutherland – Wollongong

Network Control

Signallers at Rail Operations Centre (ROC), Wollongong and Sutherland panel.

Systems of Safeworking

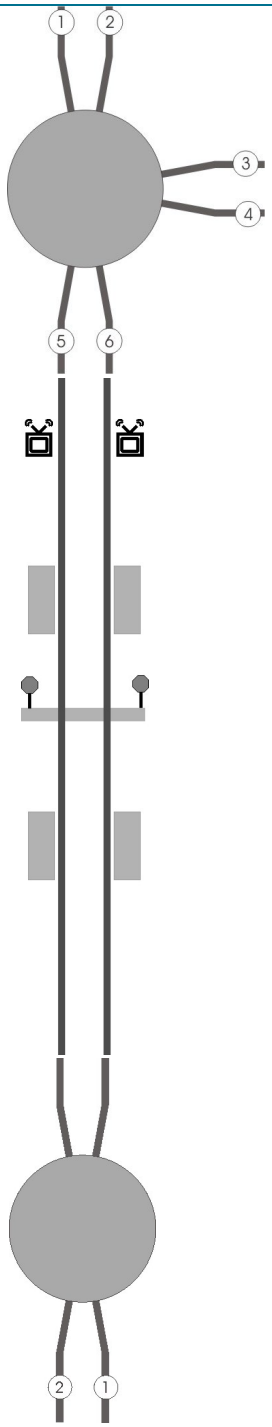
The Illawarra lines between Sutherland and Wollongong are Rail Vehicle Detection (RVD) territory. They include the sections:

Section	*System*	*Details*
Sutherland–Waterfall	RVD double-line	
Waterfall–Helensburgh	RVD double-line bidirectional	Half-staffs and X, Y and Z keys available
Helensburgh–Metropolitan Colliery Junction	RVD double-line bidirectional	Half-staffs and X, Y and Z keys available
Metropolitan Colliery Junction–Otford	RVD double-line bidirectional	Half-staffs and X, Y and Z keys available
Otford–Coalcliff	RVD double-line bidirectional	Half-staffs and X, Y and Z keys available
Coalcliff–Scarborough	RVD single-line	Half-staffs available
Scarborough–Thirroul	RVD double-line bidirectional	Half-staffs and X, Y and Z keys available
Thirroul–Corrimal	RVD double-line bidirectional	Half-staffs and X, Y and Z keys available
Corrimal–Wollongong	RVD double-line bidirectional	Half-staffs and X, Y and Z keys available

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Sutherland-Wollongong

Diagram



Location details

Sutherland 24.532km (NLA 406)

1. Up Illawarra line (Central–Sutherland)
2. Down Illawarra line (Central–Sutherland)
3. Down Cronulla Branch line (Sutherland–Cronulla)
4. Up Cronulla Branch line (Sutherland–Cronulla)
5. Up Illawarra line
6. Down Illawarra line

- 29.482km Bearing and Brake Temperature System (BBT), Up and Down Illawarra line
- 30.657km Engadine. Platforms 1, 2
- 33.055km Emergency services access
- 33.070km Heathcote. Platforms 1, 2

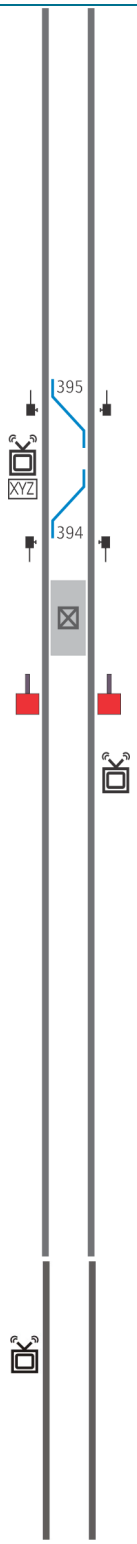
Waterfall 38.627km (NLA 412)

1. Down Illawarra line
2. Up Illawarra line

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Sutherland-Wollongong

Diagram



Location details

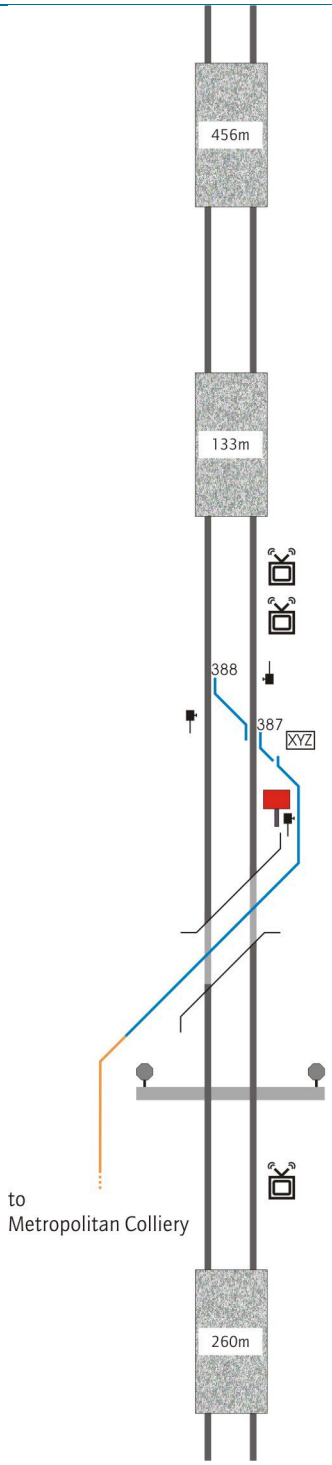
Helensburgh 46.306km

- Usually controlled from Wollongong. Can be switched in
- Rainfall monitors and slip site detectors: report to Wollongong and Helensburgh
- 44.276km YL/EYL: Down signal WG765D
- 44.276km EYL/YL: Down signal WG767U
- The half pilot staffs for the Waterfall–Helensburgh section are inscribed "Helensburgh Down main WG758" and "Helensburgh Up main WG760"
- The half pilot staffs for the Waterfall–Helensburgh section are located on the wall of the relay hut
- 395 Down Illawarra line to Up Illawarra line
- 394 Down Illawarra line to Up Illawarra line
- 4 x Driver's time-release buttons for points 395 and 394
- 46.281km Rainfall monitor. See Special instructions
- X, Y and Z keys for Waterfall–Helensburgh section beside relay hut
- 46.306km Helensburgh. Platform 1 and 2
- 46.380km Traffic hut: local control panel
- 46.600km 2 x Down wide electric train STOP signs
- 47.115km Slip detector 1
- Signals set at STOP by slip detector 1: WG747D; WG749U; WG746U and WG744D
- The half pilot staffs for the Helensburgh–Metropolitan Colliery Junction section are inscribed "Helensburgh Down main WG747" and "Helensburgh Up main WG749"
- 47.450km EYL/YL: Up signal WG744D
- 47.450km YL/EYL: Up signal WG746U

- 47.466km Slip detector 2: reports to Wollongong and Helensburgh
- Signals set at STOP by slip detector 2: Helensburgh WG749U and WG747D; Metropolitan Colliery Junction WG741U; WG739D; WG732B, WG734D and WG736U

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Diagram



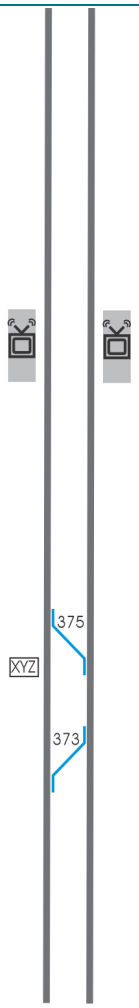
Location details

Metropolitan Colliery Junction 47.567km

- Usually controlled from Wollongong, or from Helensburgh if that is switched in
- Slip detectors report to Wollongong and Helensburgh
- 47.567km YL/EYL: Down signal WG739D
- 47.567km EYL/YL: Down signal WG741U
- The half pilot staffs for the Helensburgh–Metropolitan Colliery Junction section are inscribed "Metrop. Colliery Down main WG734" and "Metrop. Colliery Up main WG736"
- 47.620km Helensburgh
- 48.436km Metropolitan
- 48.892km Slip detector 3
- 48.917km Slip detector 4
- Signals set at STOP by slip detectors 3 and 4: WG741U; WG739D; WG732B; WG734D and WG736U, Helensburgh WG744D and WG746U
- 3 x Driver's time-release buttons for points 388 and 387
- 388 Down Illawarra line to Up Illawarra line
- 387 Down Illawarra line to Metropolitan Colliery siding
- The siding owner controls movements in the siding
- 49.000km X, Y and Z keys for Helensburgh–Metropolitan Colliery Junction section
- 49.150km Up STOP sign on Metropolitan Colliery siding
- 49.469km Access road
- 49.578km Slip detector 5
- Signals set at STOP by slip detector 5: WG737U; WG735D; WG728D and WG730U
- 49.690km Otford
- The half pilot staffs for the Metropolitan Colliery Junction–Otford section are inscribed "Metrop. Colliery Down main WG735" and "Metrop. Colliery Up main WG737"
- 50.056km EYL/YL: Up signal WG728D
- 50.056km YL/EYL: Up signal WG730U

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Diagram



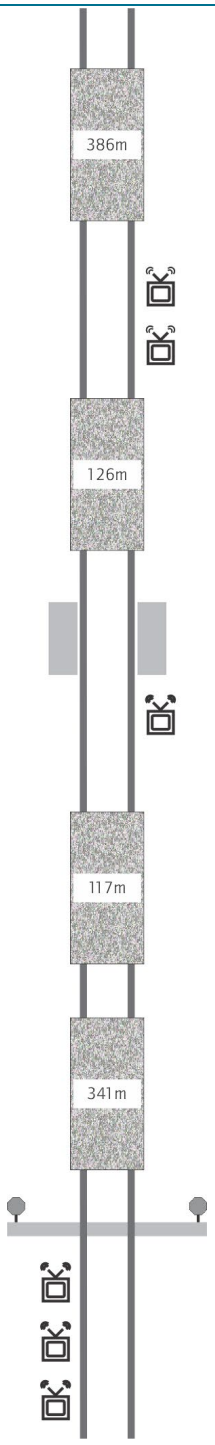
Location details

Otford 52.537km

- Usually controlled from Wollongong, or from Helensburgh if that is switched in
- 51.847km YL/EYL: Down signal WG707D
- 51.847km EYL/YL: Down signal WG709U
- The half pilot staffs for the Metropolitan Colliery Junction–Otford section are inscribed "Otford Down main WG692" and "Otford Up main WG694"
- .52.537km Otford. Platforms 1, 2
- 52.658km Slip detector 6: reports to Wollongong and Helensburgh
- 52.665km Slip detectors 6a and 6b on footbridge: report to Wollongong and Helensburgh
- Signals set at STOP by slip detectors 6, 6a and 6b: WG709U; WG707D; WG692D and WG694U
- 375 Down Illawarra line to Up Illawarra line
- XYZ 52.800km X, Y and Z keys for the Metropolitan Colliery Junction–Otford section
- 373 Down Illawarra line to Up Illawarra line
- The half pilot staffs for the Otford–Coalcliff section are inscribed "Otford Down main WG697" and "Otford Up main WG699"
- 53.913km EYL/YL: Up signal WG688D
- 53.913km YL/EYL: Up signal WG690U

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Diagram

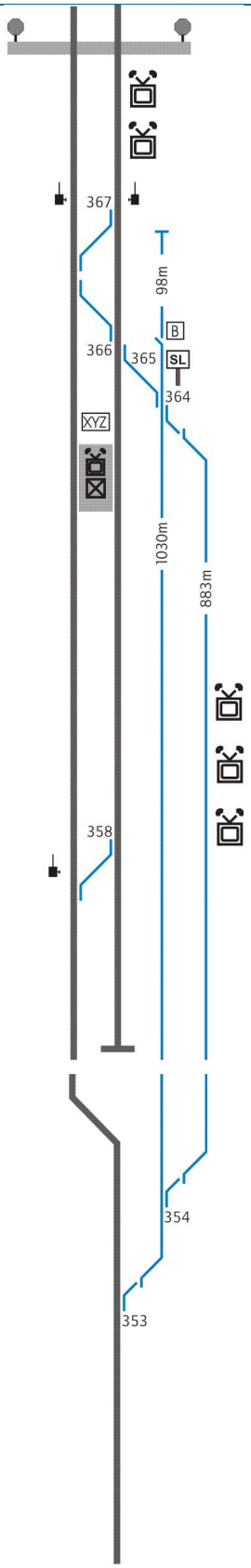


Location details

- Slip detectors report to Wollongong and Coalcliff
- 54.463km Bald Hill
- 55.522km Slip detector 7
- 55.600km Slip detector 8
- Signals set at STOP by slip detectors 7 and 8: WG683D; WG685D; WG687U; WG682U and WG678D
- 55.735km Stanwell Park Shelter
- 55.871km Stanwell Park. Platforms 1, 2
- 56.299km Slip detector 10
- See Special instructions
- 56.543km Stanwell Park
- 57.070km Stanwell Creek
- 57.600km Access road
- 57.914km Slip detector 11a
- 58.003km Slip detector 11b
- Signals set at STOP by slip detectors 11a and 11b: WG687U; WG681D; WG675U; WG673D; WG654ES; WG656DR; WG658D and WG660U
- 58.120km Slip detector 11c
- Signals set at STOP by slip detector 11c: WG654D, WG656D, WG658, WG660U, WG673D and WG675U

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Diagram



Location details

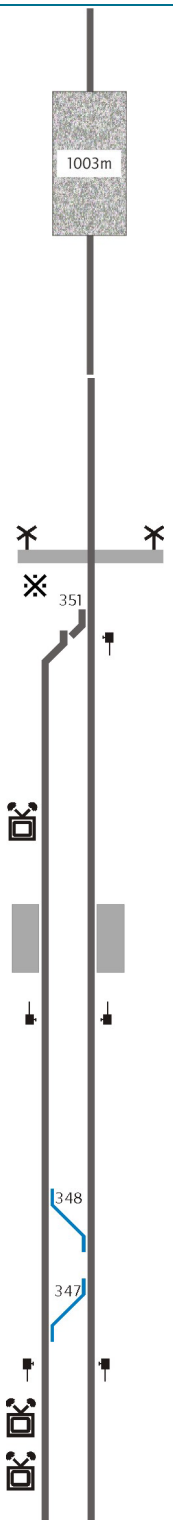
Coalcliff 59.190km

- Usually controlled from Wollongong. Can be switched in
- Rainfall monitors and slip detectors report to Wollongong and Coalcliff
- 57.773km YL/EYL: Down signal WG673D
- 57.773km EYL/YL: Down signal WG675U
- The half pilot staffs for the Otford–Coalcliff section are inscribed "Coal Cliff Down main WG658" and "Coal Cliff Up main WG660"
- 58.383km Access road
- 58.580km Slip detector 12
- 58.600km Slip detector 13
- Signals set at STOP by slip detectors 12 and 13: WG675U; WG673D; WG654ES; WG656DR, WG658D and WG660U
- 3 x Driver's time-release buttons for points 367, 366 and 358
- 367 Down Illawarra line to Up Illawarra line
- 366 Down Illawarra line to Up Illawarra line
- B 58.985km Down Refuge siding to Perway siding: key from releasing switch B, released by release 363
- SL 59.023km Up SHUNT LIMIT sign on Down Refuge siding
- 365 Down Illawarra line to Down Refuge siding
- 364 Down Refuge siding to Eastern Coal Loop siding
- XYZ 59.175km X, Y and Z keys for Otford–Coalcliff section
- 59.190km Coalcliff. Platform 1 and 2
- 59.230km Rainfall monitor. See Special instructions
- 59.240km Traffic hut: local control panel. Key to traffic hut in booking office
- 59.610km Slip detector 14
- 59.631km Slip detector 15
- 59.666km Slip detector 16
- Signals set at STOP by slip detectors 14, 15 and 16: 655, WG653U, WG647D, WG645D; WG643DR; WG651D; 634 and 638, WG642U
- 358 Down Illawarra line to Illawarra line. Down Illawarra line ends
- 354 Eastern Coal Loop siding to Down Refuge siding
- 353 Down Refuge siding to Illawarra line
- The half pilot staff for the Coalcliff–Scarborough section is inscribed "Coal Cliff WG633"
- EYL 60.318km EYL/YL: Up signal WG632U

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Sutherland-Wollongong

Diagram



Location details

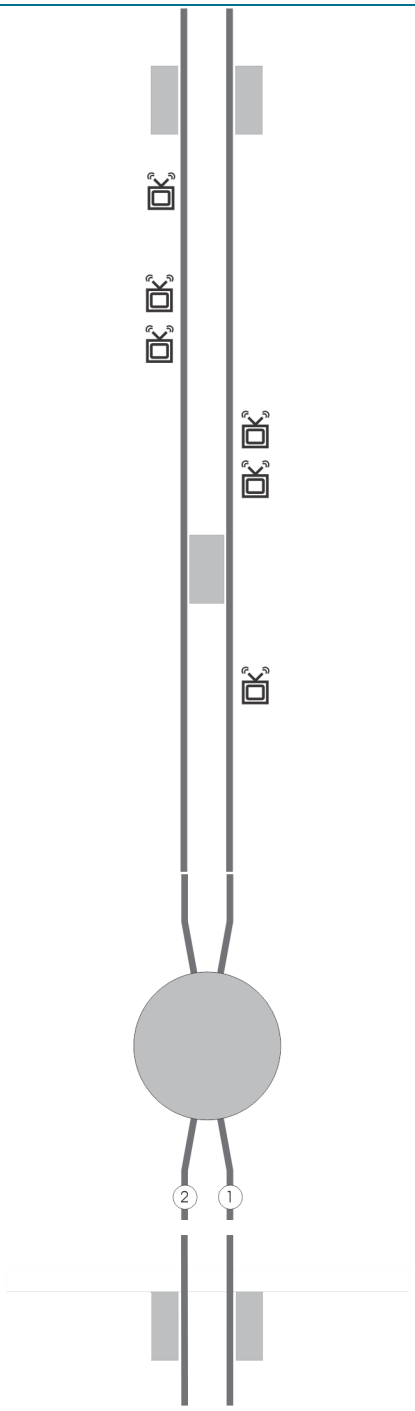
60.338km Coalcliff

Scarborough 62.405km

- Usually controlled from Wollongong, or from Coalcliff if that is switched in
- Slip detectors report to Wollongong and Coalcliff
- 61.754km YL/EYL: Down signal WG627D
- The half pilot staff for the Coalcliff–Scarborough section is inscribed "Scarborough WG628"
- 61.819km Clifton School Parade: automatic; with Manual Operation switch. Keys at Thirroul
- 351 Up Illawarra line to Illawarra line. Up Illawarra line ends
- 5 x Driver's time-release buttons for points 351, 348 and 347
- 62.252km Slip detector 19a
- Signals set at STOP by slip detector 19a: WG627D; WG622D, WG624U, WG616D, WG618 and WG627D
- 62.405km Scarborough. Platforms 1, 2
- 348 Down Illawarra line to Up Illawarra line
- 347 Down Illawarra line to Up Illawarra line
- 63.645km Slip detector 20
- 63.725km Slip detector 21
- Signals set at STOP by slip detectors 20 and 21: WG621U; WG619D; WG612D and WG614U
- The half pilot staffs for the Scarborough–Thirroul section are inscribed "Scarborough Down main WG619" and "Scarborough Up main WG621"
- 63.998km EYL/YL: Up signal WG612D
- 63.998km YL/EYL: Up signal WG614U

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Diagram



Location details

- Slip detectors report to Wollongong and Thirroul
- 64.245km Wombarra. Platforms 1, 2
- 64.383km Slip detector 22
- Automatic signals set at STOP by slip detector 22: Down WG611U and WG609D; Up WG602D and WG606U
- 65.416km Slip detector 23
- 65.474km Slip detector 24
- Automatic signals set at STOP by slip detectors 23 and 24: Down WG611U and WG609D; Up WG602D, WG604U and WG606U
- 65.838km Slip detector 25
- 65.874km Slip detector 26
- Automatic signals set at STOP by slip detectors 25 and 26: WG611U; WG609D;WG607D; WG602D; WG604U and WG606U
- 66.170km Coledale. Platform 1 and 2
- 66.554km Slip detector 27
- Signals set at STOP by slip detector 27: WG611U; WG607D; WG598D, WG600U, WG602D and WG604U

Thirroul 70.145km (NLA 414)

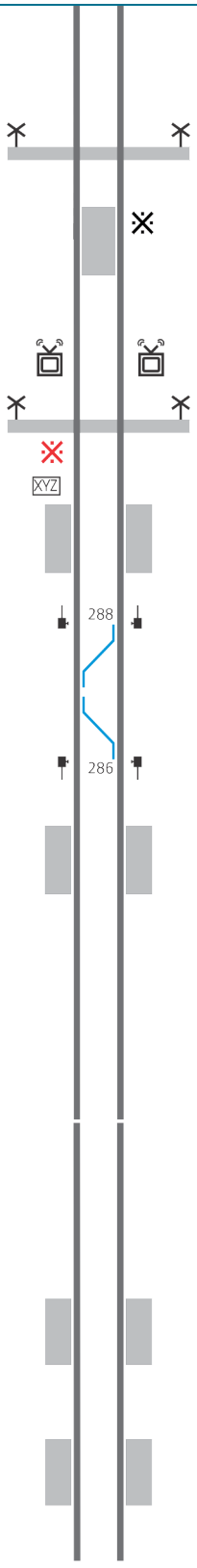
① Down Illawarrra Line

② Up Illawarra line

- 73.930km Woonona. Platforms 1, 2

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Diagram



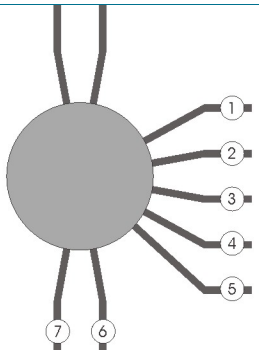
Location details

Corrimal 76.897km

- Controlled from Wollongong
- 75.375km YL/EYL: Down signal WG531D
- 75.375km EYL/YL: Down signal WG533U
- The half pilot staffs for the Thirroul–Corrimal section are inscribed “Corrimal Down main WG506” and “Corrimal Up main WG508”
- 75.458km Bellambi Lane: automatic; with Manual Operation switch. Keys at Thirroul
- 75.474km Bellambi. Platform 1 and 2
- 76.209km Bearing and Brake Temperature System (BTT), Up and Down Illawarra line
- 76.806km Railway Street: automatic; with Manual Operation switch and Master Emergency switch. Keys at Thirroul
- See Special instructions
- 76.875km X, Y and Z keys for Thirroul–Corrimal section
- 76.897km Corrimal. Platforms 1, 2
- 4 x Driver’s time-release buttons for points 288 and 286
- Down Illawarra line to Up Illawarra line
- Down Illawarra line to Up Illawarra line
- 77.940km Towradgi. Platforms 1, 2
- The half pilot staffs for the Corrimal–Wollongong section are inscribed “Corrimal Down main WG501” and “Corrimal Up main WG503”
- 78.416km EYL/YL: Up signal WG490D
- 78.416km YL/EYL: Up signal WG492U

- 79.283km Fairy Meadow. Platforms 1, 2
- 81.189km North Wollongong. Platforms 1, 2

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Diagram	*Location details*
	**Wollongong 82.919km** (NLA 416) ① Down Inner Harbour North Fork line (Inner Harbour) ② Up Inner Harbour North Fork line (Inner Harbour) ③ Down Port Kembla Branch line (Port Kembla) ④ Up Port Kembla Branch line (Port Kembla) ⑤ Allans Creek Triangle Loop line (Port Kembla) ⑥ Down Illawarra line (Wollongong–Bomaderry [Nowra]) ⑦ Up Illawarra line (Wollongong–Bomaderry [Nowra])

Special instructions

Slip detector 10

Slip detector 10 monitors the condition of the service track adjacent to the Down Illawarra line.

When slip detector 10 alarm indicator activates, the Signaller at Wollongong signal box, or the relevant local control panel when switched in, must:

- tell the Network Controller that an ALARM condition exists at the slip detector 10 site
- treat the warning as a Condition Affecting the Network (CAN) in accordance with the Network Rules and Network Procedures
- warn rail traffic that will travel in either direction between 56.000km and 56.500km, that the slip detector alarm has occurred.

The CAN warning must tell Drivers to proceed, paying particular attention to the condition of the line or any adverse effects on the infrastructure, and report their observations to the Signaller.

The Signaller must:

- record details of the warning in the Train Register Book or other recording system provided.

When told of an alarm indication by the Signaller at Wollongong signal box, or the relevant local control panel if switched in, the Network Controller must tell the Infrastructure Operations Centre about the situation.

When told of an alarm indication, the Infrastructure Operations Centre representative must arrange for appropriate on-call Civil staff to assess the area concerned.

The on-call Civil staff must:

- assess the affected area.

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Following an assessment of the affected area, the on-call Civil staff must:

- tell the Infrastructure Operations Centre representative whether or not the line is safe for trains and any conditions that must be observed.

When told by the on-call Civil staff, the Infrastructure Operations Centre officer must advise the Network Controller that the line is safe for trains and any conditions that apply.

When told by the Infrastructure Operations Centre officer, the Network Controller must advise the relevant Signaller that the line is safe for trains and any conditions that apply.

The Network Controller may then authorise a return to normal working.

Rainfall monitoring

Rainfall monitors are provided at the Helensburgh and Coalcliff relay rooms to warn when rainfall in the area between Helensburgh to Otford and Otford to Austinmer is excessive.

Note

Details for the rainfall monitor at Thirroul are provided in NLA 414 Thirroul.

Protecting signals

Helensburgh to Otford: Signals WG747D and WG749U to WG692D and WG694U

Otford to Austinmer: Signals WG697D and WG699U to WG598D and WG600U.

Control panel indications

The rainfall monitor's status is displayed on the Wollongong signal box indicator panel and on the relevant local control panel by WARNING and ALARM lights:

- a yellow WARNING light will be lit if a 15 minute or an 8 hour warning condition (rainfall rate) occurs
- a red ALARM light will be lit if a 15 minute or an 8 hour alarm condition (rainfall rate) occurs.

These lights hold any rainfall monitor warning or alarm condition until the rainfall monitor resets.

Audible alarm

An audible alarm sounds at Wollongong signal box, or the relevant local control panel, when a rainfall monitor lamp is lit or goes out.

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Responding to a rainfall monitor WARNING indication

When a rainfall monitor WARNING light is displayed, the Signaller at Wollongong signal box, or the relevant local control panel when switched in, must:

- tell the Network Controller that a warning condition exists at the rainfall monitor site
- treat the warning as a Condition Affecting the Network (CAN) in accordance with the Network Rules and Network Procedures
- warn rail traffic that will travel in either direction between Waterfall and Otford when the Helensburgh detector activates, or in either direction between Otford and Austinmer when the Coalcliff detector activates, that a rainfall warning has occurred.

The CAN warning must tell Drivers to proceed at a speed of 20kph below advertised speed, paying particular attention to water levels near the line or any adverse effects on the infrastructure, and report their observations to the Signaller.

The Signaller must:

- record details of the warning in the Train Register Book or other recording system provided
- establish which signals protect the affected area in case the alarm warning is indicated.
- When told of a WARNING indication by the Signaller at Wollongong signal box, or the relevant local control panel if switched in, the Network Controller must tell the Infrastructure Operations Centre about the situation.

When told of a WARNING indication, the Infrastructure Operations Centre representative must arrange for appropriate on-call Civil staff to assess the area concerned.

The on-call Civil staff must:

- tell the Infrastructure Operations Centre whether or not the line is safe for trains
- remain on duty while the rainfall WARNING condition exists.

Responding to a rainfall monitor ALARM indication

When a red ALARM warning light is shown, the Signaller at Wollongong signal box, or the relevant local control panel if switched in, must:

- CAN warn trains currently in the affected area/s to proceed at a maximum speed of 20kph until the trains are clear of the affected rainfall monitor (RFM) coverage area/s, paying particular attention to water levels near the line or any adverse effects on the infrastructure, and report their observations to the Signaller

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- stop any following trains from entering the affected RFM area/s in ALARM
- place and keep blocking facilities on all applicable signal controls
- tell the Network Controller that an ALARM condition exists and that trains in the affected areas will be CAN warned to proceed at a maximum speed of 20kph, until the trains are clear of the affected RFM coverage area/s record the occurrence in the Train Register Book or other recording system provided.

An activation of the Helensburgh RFM ALARM must be treated as a Condition Affecting the Network (CAN), in accordance with the Network Rules and Network Procedures for rail traffic travelling in either direction between Waterfall and Helensburgh.

The CAN warning must tell Drivers to proceed, paying particular attention to water levels near the line or any adverse effects on the infrastructure, and report their observations.

When told of an ALARM indication by the Signaller at Wollongong signal box, or the relevant local control panel when switched in, the Network Controller must tell the Infrastructure Operations Centre and the on-call Incident Rail Commander for the area about the situation.

When told of the ALARM indication, the Infrastructure Operations Centre representative must notify the appropriate on-call Civil staff to assess the area concerned.

When told of the ALARM indication, the on-call Civil staff must assess the affected area in accordance with the relevant maintenance operating instructions.

Following an assessment of the affected area, the on-call Civil staff must:

- tell the Infrastructure Operations Centre representative whether or not the line is safe for trains and any conditions that must be observed
- remain on duty while the rainfall ALARM indication exists.

When told by the on-call Civil staff, the Infrastructure Operations Centre officer must advise the Network Controller that the line is safe for trains and any conditions that apply.

When told by the Infrastructure Operations Centre officer, the Network Controller must tell the relevant Signaller that the line is safe for trains and any conditions that apply.

The Network Controller may then authorise trains to proceed.

The Signaller must CAN warn trains of any conditions that apply, paying particular attention to water levels near the line or any adverse effects on the infrastructure, and report their observations to the Signaller.

Alarm indication remaining after track inspection & certification

Civil staff are to request that the first train to traverse the affected section on each track to be limited to a 40kph speed limit. A civil representative must accompany the first train in either direction. If the civil representative does not report any Condition Affecting the Network (CAN), then operations will revert to WARNING state. Civil Staff are to continue with front of train inspections in case of further rain fall or until both the ALARM and WARNING state have cleared. If a further rainfall monitor ALARM event occurs after one has just been completed, then "Responding to a rainfall monitor ALARM indication" is to be re-enacted. A rainfall monitor alarm event is deemed as over when:

- The lights indicating alarm event on the control panel at the Wollongong Signal Box have been extinguished, and at a minimum one cycle of required inspections has been carried out
- Otherwise approved by the Structures & Corridor Engineering Manager or Senior Manager Track Engineering.

Testing and adjusting rainfall monitors

Rainfall monitors must be tested monthly, or as otherwise specified by the Civil and Signals Engineering Managers.

The Signaller at Wollongong signal box must be told of all tests, and record these tests in the Train Register Book or other recording system provided.

Failure of remote control system

If there is a failure of the system controlling a remote location where a rainfall monitor is installed, Signallers at Wollongong signal box must tell the Network Controller and the Infrastructure Operations Centre representative that a failure of the remote control/indication system has occurred.

The Infrastructure Operations Centre representative must tell the Civil Engineering Manager, who must make appropriate alternative arrangements.

Rainfall monitor failure

If a rainfall monitor or the associated equipment is defective, the Civil and Signal representatives must book the rainfall monitor out of use on an Infrastructure Booking Authority.

If the rainfall monitor is to be booked out of use for an extended period, the matter must be reported to the Civil and Signal Engineering Managers.

The Civil Engineering Manager must establish an appropriate manual inspection or monitoring program until the rainfall monitor or associated equipment has been brought back into use.

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Railway Street level crossing

Railway Street level crossing is fitted with a single Master Emergency switch.

Operation of the Master Emergency switch will place signals WG 506D, WG531D, WG508U and WG 533U at STOP. They will remain at STOP until the Manual Operation switch is operated and the level crossing equipment has operated and the booms are lowered or the Master Emergency switch is restored.

Establishing worksites using Wireless Automatic Track Warning System (ATWS) as a safety measure

The following locations may establish a worksite inside yard limits using Lookout Working with wireless ATWS as a safety measure.

Protection Officers must:

- Be inducted into the ATWS area implementation and management plan,
- Establish worksites in accordance with the protection arrangements and details for each location set below.

Metropolitan Colliery

Routine Network Maintenance Worksite Protection Plan: SC5BWS 10119

Worksite location: Up and Down Illawarra lines between 48.920 KM (WG 737 U / WG 735 U) and 49.072 KM (WG 736 U / WG 734 D)

Sensor 1 location: Up Illawarra Main at 48.282 KM

Sensor 2 location: Down Illawarra Main at 48.282 KM

Sensor 3 location: Up Illawarra Main at 49.507 KM

Sensor 4 location: Down Illawarra Main at 49.507 KM

Corrimal

Routine Network Maintenance Worksite Protection Plan: CMO4BWS 10120

Worksite location: Up and Down Illawarra lines between 76.200 KM (WG 530 U / WG 508 U) and 76.299 KM (WG 531 D / WG 506 D)

Sensor 1 location: Up Illawarra Main at 75.129 KM

Sensor 2 location: Down Illawarra Main at 75.129 KM

Sensor 3 location: Up Illawarra Main at 77.125 KM

Sensor 4 location: Down Illawarra Main at 77.125 KM

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Related documents

NLA 400	*Central–Sutherland*
NLA 406	*Sutherland*
NLA 408	*Sutherland–Cronulla*
NLA 412	*Waterfall*
NLA 414	*Thirroul*
NLA 416	*Wollongong*
NLA 418	*Wollongong–Bomaderry (Nowra)*
NLA 608	*Port Kembla*

Effective date

13 August 2025

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