

# ATWS Worksite Protection for Beecroft condition and monitoring equipment maintenance

<b>DOCUMENT NO.</b>	D2021/29494
<b>WORK DESCRIPTION</b>	Routine Maintenance activities - Condition monitoring equipment maintenance
<b>WPP Number</b>	CMO3BWS 10001
<b>SCOPE:</b>	<p>Routine maintenance activities performed by Condition Monitoring Operations team.</p> <ul style="list-style-type: none"> <li>On the <b>Up Main North</b> at <b>26.670km</b></li> <li>That does not involve the use of tools or equipment, or</li> <li>Using tools which can be easily and immediately removed from the track by one person and are light, non-powered hand tools, or light battery powered tools or devices</li> <li>This protected worksite is outside yard limits</li> </ul>
<b>AUTHORISATIONS:</b>	<p><b>Protection Officer, ATWS Operator (Operator) &amp; ATWS Installer (Installer):</b></p> <ul style="list-style-type: none"> <li>Protection Officer (PO) Level 1 – 4, and</li> <li>WATWS – Wireless Automatic Track Warning System</li> </ul>
<b>PERSONAL PROTECTIVE EQUIPMENT</b>	<ul style="list-style-type: none"> <li>High visibility vest, boots, high visibility lookout sleeve</li> <li>Hard hat &amp; safety eyewear as required</li> <li>Personal Protective Equipment (PPE) clothing</li> </ul>
<b>SAFETY CONTROLS – Lookout Working (ATWS) arrangements:</b>	<ul style="list-style-type: none"> <li>Automatic Track Warning System (ATWS) - provides visual and audible warning for workers</li> <li>Installed ATWS sensors for Down direction running on the <b>Down Main North line at 26.140 km</b></li> <li>Installed ATWS sensors for Up direction running on the on <b>Up Main North line at 27.122 km</b></li> <li><b>IMPORTANT!</b></li> <li>This document must not be used to install or adjust the ATWS sensors</li> <li>All sensors in the plan and shown on the diagram must be connected to transmit a warning</li> </ul>
<b>PRESTART REQUIREMENTS:</b>	<ul style="list-style-type: none"> <li>Refer to D2015-45354 Wireless ATWS (Automatic Track Warning System) to install or remove sensors</li> </ul>
<b>FURTHER INFORMATION:</b>	<i>Refer to “D2015-45354 Wireless ATWS (Automatic Track Warning System)” for detailed instructions to set-up, connect, test and operate the ATWS system with pre-installed ATWS sensors</i>

Required ATWS Equipment		
Item	Description	Quantity
Aerial	Telescopic Aerial	3
Assembly Kit	Orange Bag with Tools	1
Battery ZA24-2.9	Small battery for Junction Box & Transmitter	4
Device Frame	Protective Frame	3
F500-AB Junction Box	Receiver Device	2
F500-SEN Train Sensor	Sensor	2
Housing for Aerial	Housing for Telescopic Aerial	3
KF5-5 Extension Cable	Extension Cable (5m) for F500-SEN to F500-AB	1
Mobile Backpack	Harness for Device	0
Pouch	Pouch for small battery	2
Tripod	Tripod for Device	3
ZFS Radio Transmitter	Radio Transmitter Device	2
ZPW Warning Unit	Control & Warning Device	1

# ATWS Worksite Protection for Beecroft condition and monitoring equipment maintenance

## Protection Officer/Operator assessment checklist

Protection Officer's name:

**Yes**  
(Tick if Yes)

This document has not expired 12 months beyond the issue date.

SWI details and protection arrangements have been reviewed and validated for the assessed worksite location, including:

- On-site safety assessment has been completed for relevancy of works being undertaken
- The required protection details, environment and tasks are unchanged from the details of this SWI
- All boxes have been ticked if applicable and crossed if not applicable
- All fields have been completed

**Corridor Safety Number**

**Protection Officer Signature**

**Date**

### Warning



*If an above item does not apply, the Protection Officer must not use this Safe Work Instruction. A new worksite protection plan must be completed in accordance with NRF 014 Worksite Protection Pre-work briefing and NRF 015 Worksite Protection Plan.*

# ATWS Worksite Protection for Beecroft condition and monitoring equipment maintenance

## Worksite Protection Pre-work Briefing

Briefing date:  /  / 

### Protection Officer details

<input type="text"/> name	<input type="text"/> signature	<input type="text"/> contact No.
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Work location: Scope of work: Worksite protection:  Refer to Worksite Protection Plan for details

Hazards (e.g. Site specific hazards identified, including physical environment, human errors, plant and equipment)	Controls (to be implemented to eliminate or reduce the risk to the lowest practicable level)	Person responsible for Control
<b>Crossing live lines</b>	A qualified Protection Officer (PO) or Access Corridor Safety (ACS) must make a safety assessment to cross live lines in accordance with NGE200 and supervise workers who do not hold the PO or ACS qualification.	Qualified PO/ACS
<b>No safe place in the down cess</b>	Both tracks must be set up and tested with ATWS before work commences. All workers must move to the up cess when a warning is heard either by the ATWS warning device or lookout.	All
<b>Accessing Danger Zone to conduct plate test</b>	Use appropriate safety measures as validated by a PO. Refer to diagram for minimum safety assessment.	Qualified PO
<b>Electricity</b>	ATWS antennae not to encroach safe approach distance to overhead wiring	Operator
<b>Slips, trips, falls carrying ATWS equipment</b>	Use correct manual handling techniques, secure safety boots, clear obstacles for work area and agree a safe path.	All
<b>Approaching rail traffic</b>	All points of entry have been validated and ATWS safety measures (sensors and point clips) have been installed. Confirm with the Operator that the ATWS has been tested and is operational. Workers immediately move to the designated safe place when warned. Provide ALL CLEAR handsignal after workers and equipment are in a safe place. After the warning has been cancelled, confirm there is no approaching rail traffic between the sensors and the worksite before allowing work to resume.	PO
<b>Ineffective ATWS warnings / Adjoining / surrounding worksites</b>	Test and confirm workers can see and hear the warning in the noisiest environment. Explain the emergency warnings. Workers to be within 50m of warning device. Workers to remain within sight and hearing of warning unit at all times. Radios not to be used near ATWS.	PO
<b>Train warning time longer than expected (stopping points or ATWS equipment fault)</b>	Workers to remain in a safe place until confirmed the ATWS is working correctly. Contact the Signaller or visually confirm the line is clear between the sensors and the worksite. Potential stopping points: Up –N16.66 repeater signal, Beecroft station platform 1 & N16.66 auto signal Down – N16.37	PO
<b>Adjacent live lines</b>	Remain within the tracks being protected by the ATWS	PO
<b>Second train warning cancelled in error</b>	Nominate a team member to confirm with the Operator when each rail traffic has completely passed the worksite. Tell the PO and workers about the second train warning. Cancel each warning after each train has completely passed the worksite.	Operator / nominated team member
<b>Distraction</b>	Obtain permission from PO to use electronic devices in the Danger Zone.	All
<b>Obstructions to safe place</b>	Agree on paths to reach designated safe places from the worksite.	PO
<b>Electrical storms</b>	Stop work immediately	All

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<b>Hazards</b> (e.g. Site specific hazards identified, including physical environment, human errors, plant and equipment)	<b>Controls</b> (to be implemented to eliminate or reduce the risk to the lowest practicable level)	<b>Person responsible for Control</b>

## ATWS Worksite Protection for Beecroft condition and monitoring equipment maintenance



name		contact No.	
Emergency assembly point:		SWMS/SWI Ref #:	
First aid kit location:		First aider:	

The Workplace Supervisor acknowledges that all identified WHS and rail safety hazards have the appropriate controls in place to manage and/or eliminate the hazards.

Yes ☐

signature

**NOTE:** Recipients of the briefing are to question the Briefer if they don't understand any part of this briefing.

All workers listed below acknowledge that they:

- |   |   |
|---|---|
| 1. have been inducted to the site   | 6. have been briefed on the contents of the Worksite Protection Plan  |
| 2. are free from alcohol and drugs  | 7. have been shown the Worksite Protection Plan diagram   |
| 3. are free from the effects of fatigue   | 8. understand the kinds and limits of worksite protection in place  |
| 4. hold the applicable and current Rail Safety Worker Authorisation, trade licence and/or induction record e.g. Construction Industry Induction | 9. have been briefed about any new hazards and controls identified during the final site inspection ( <i>final site inspection must be conducted immediately before commencing work</i> ) |
| 5. must wear the appropriate Personal Protective Equipment (PPE)  |   |

Mark each check box below with a tick ☒ if the item applies or a cross ☐ if the item does not apply.

- |   |   |
|---|---|
| <input type="checkbox"/> have been informed of the requirements of the electrical permit (if required)  | <input type="checkbox"/> have been made aware of any hazardous materials/substances on site |
| <input type="checkbox"/> have been briefed on the SWMS/SWIs/documentated safe work practice for the job | <input type="checkbox"/> have been briefed on Safety Data Sheets (SDS)                      |
| <input type="checkbox"/> have been instructed in the controls recorded in this document and SWMS/SWIs   | <input type="checkbox"/> have been briefed on the WHS Management plan                       |
|   | <input type="checkbox"/> have been briefed on the hazards of adjoining worksites/processes. |

[illegible]

## Safe Work Instruction

# ATWS Worksite Protection for Beecroft condition and monitoring equipment maintenance



## Worksite Protection Plan – Lookout Working

### Signaller details

name	Epping Panel	9701 1580
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### Protection Officer details

name	signature	contact No.
RSW or RIW No.	designation	Planned duration

Workplace Supervisor details:

Type of work: **Routine Maintenance Activities**

### Worksite location

On the	Up Main North line	
between	N16.66 Signal	and EG 62 Accept Signal
On the	Down Main North line	
between	N 16.37 Auto Signal	and N 16.65 Auto Signal

### Worksite Assessment

Has the Lookout Working Prohibited Locations Register been consulted? Yes ☐

### Warning method

ATWS

### Minimum Warning Time Calculations

Maximum track speed 75 km/h

Number of ATWS Sensors used 2 Position of ATWS Sensors 26.140 km and 27.122 km

Number of dedicated Lookouts used Position of Lookouts To

**Note** - Lookouts are relocated to positions within these KMs as workers move along the worksite.

<table><tr><td>7 sec</td></tr><tr><td>7 sec</td></tr></table>	7 sec	7 sec	+	<table><tr><td>3 sec</td></tr><tr><td>3 sec</td></tr></table>	3 sec	3 sec	+	<table><tr><td>10 sec</td></tr><tr><td>10 sec</td></tr></table>	10 sec	10 sec	= Minimum Warning Time (MWT)	<table><tr><td>20 sec</td></tr><tr><td>20 sec</td></tr></table>	20 sec	20 sec	<table><tr><td>75 km/h</td></tr><tr><td>90 km/h</td></tr></table>	75 km/h	90 km/h	<table><tr><td>417 metres</td></tr><tr><td>500 metres</td></tr></table>	417 metres	500 metres	<table><tr><td>Identify Line Up Main</td></tr><tr><td>Identify Line Down Main</td></tr></table>	Identify Line Up Main	Identify Line Down Main
7 sec																							
7 sec																							
3 sec																							
3 sec																							
10 sec																							
10 sec																							
20 sec																							
20 sec																							
75 km/h																							
90 km/h																							
417 metres																							
500 metres																							
Identify Line Up Main																							
Identify Line Down Main																							
See Time (S)		Move Time (M)		Safe Time	(S+M+10 sec = MWT)		Track speed	Minimum Sighting Distance as calculated															

### Where are the safe places identified for the ATWS Operator, Lookouts and workers?

Lookouts: N/A

Workers: Up Cess for Up Main. Up Cess for Down Main.

Confirm mandatory first train tests were completed for all sensors Yes ☐

Ensure the workers have been briefed about these work details Yes ☐

NOTE: Diagrams and instructions that follow form part of this worksite protection plan.

**ATWS Worksite Protection for Beecroft condition and monitoring equipment maintenance****ATWS Check-sheet****Planning****1. How will the installed location of sensor(s) be verified?**

- ☐ The PO will have direct line of sight to the sensor from the worksite location
- ☐ The installer will travel from the sensor location to the worksite location on the same side of track
- ☐ The ID no. of the first train will be verified between the operator and installer

Train ID # observed:

Verified by installer: ☐ (tick to confirm)**Testing****2. Record evidence of mandatory First Trains Tests:**

- a. Record Train ID # or type of train observed for all sensors:

- b. Confirm mandatory first train tests are complete for all sensors installed ☐ (tick to confirm)

**Pre-work Briefing****3. Identify potential stopping points affecting warning times:**

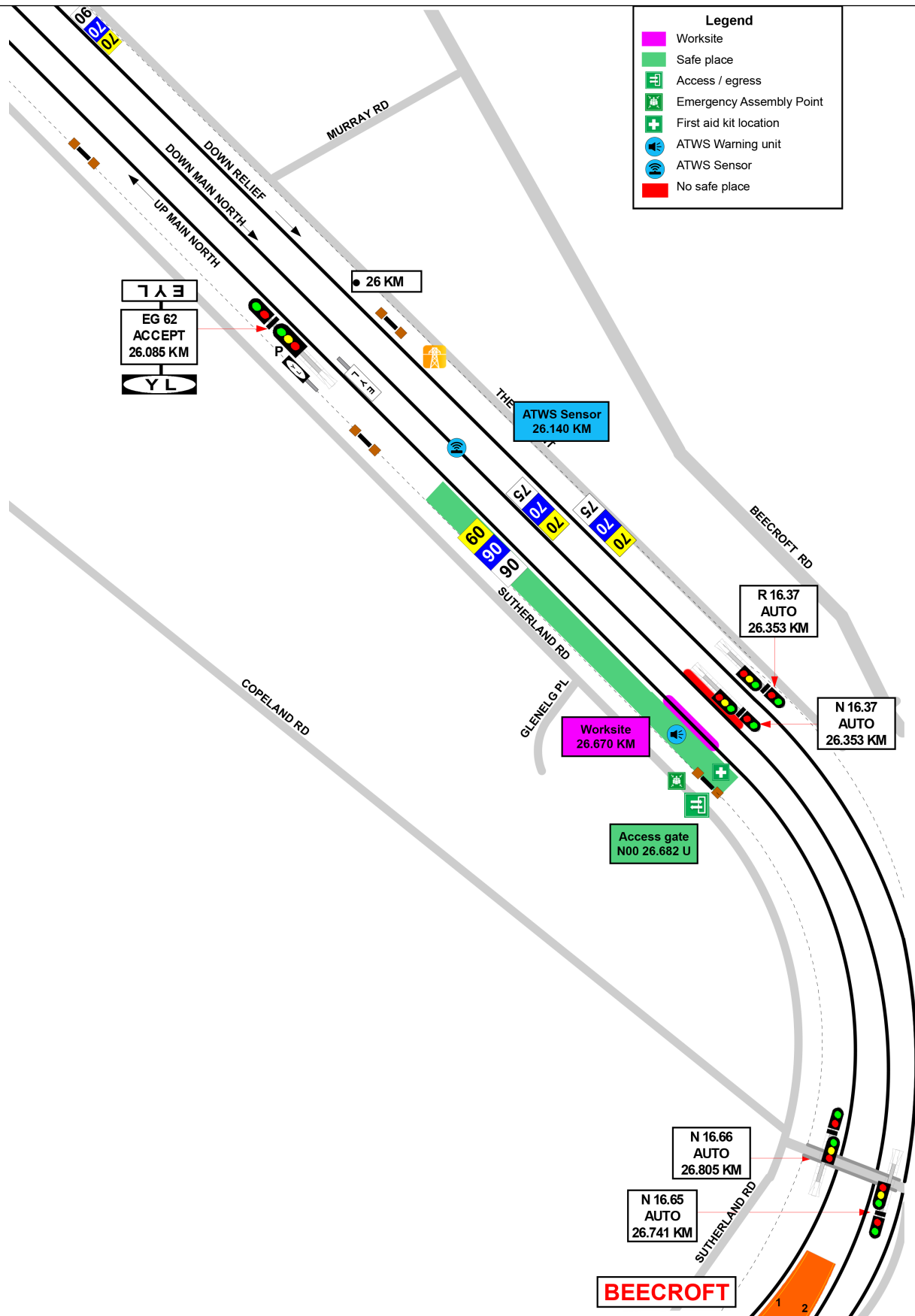
Record any potential stopping points e.g. (stations or signals) between the sensor(s) and worksite which could cause variable warning times:

Up –N16.66 repeater signal, Beecroft station platform 1 & N16.66 auto signal  
Down – N16.37

Note: Factors affecting warning times should be highlighted to staff during the pre-work brief

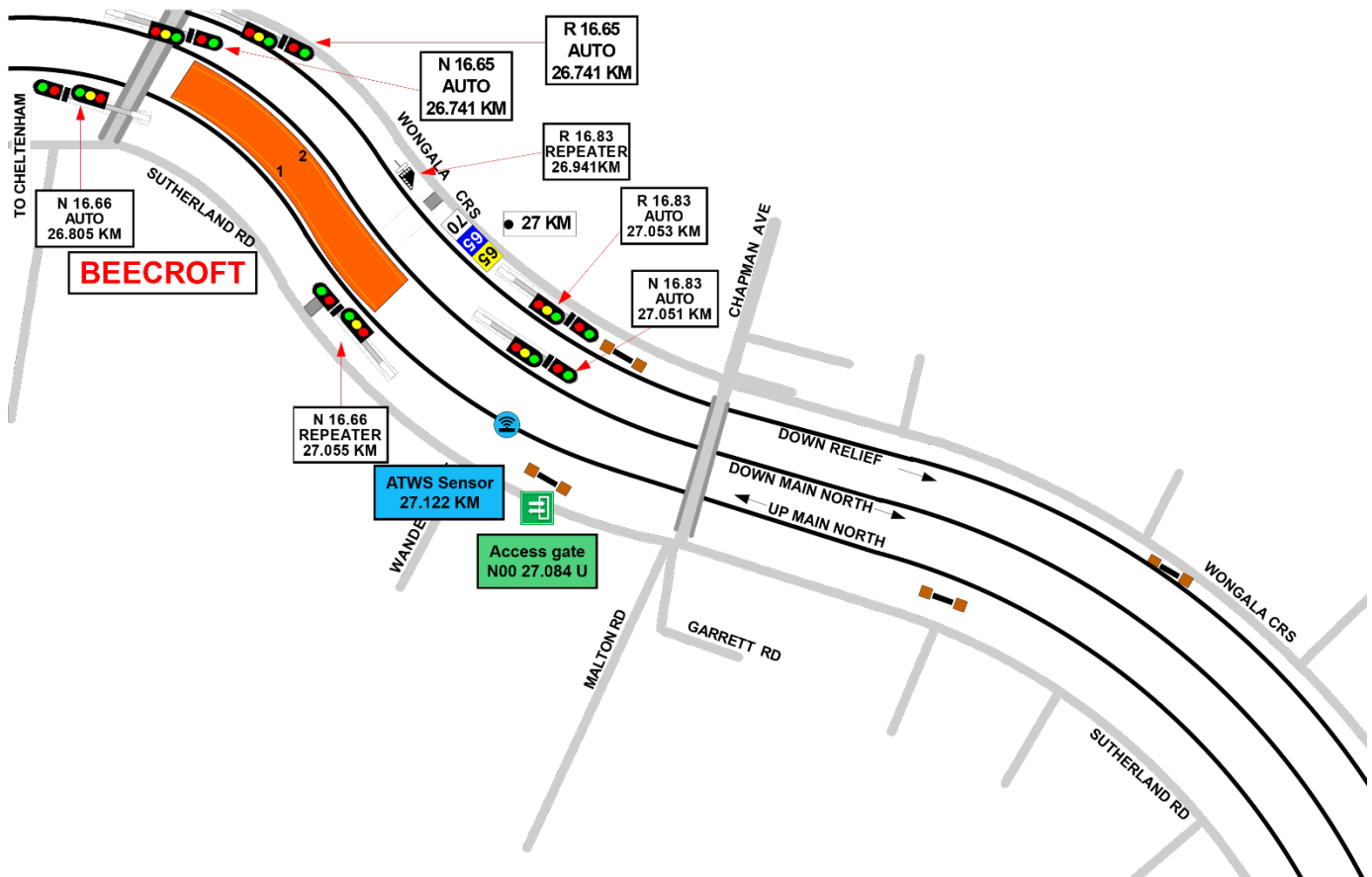
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## Worksite on Up & Down Main lines





# ATWS Worksite Protection for Beecroft condition and monitoring equipment maintenance



# ATWS Worksite Protection for Beecroft condition and monitoring equipment maintenance

<b>INSTRUCTIONS:</b>	<ol style="list-style-type: none"> <li>Workers enter the rail corridor via access gate <b>N00 26.682 U</b>.</li> <li>Use assets to validate worksite location on <b>Up Main and Down Main North lines at 26.670 km</b></li> <li>Conduct WP Pre-work briefing to set-up ATWS.</li> <li>Tell Signaller at <b>Epping Panel</b> about the use of lookout working with ATWS.</li> </ol>
	<ol style="list-style-type: none"> <li>Access <b>Up Cess 27.122 km</b>, verify sensor label &amp; connect to sensor cable, calibrate with test plate, connect and turn on the transmitter.</li> </ol>
	<ol style="list-style-type: none"> <li>Access <b>Dn Cess 26.140 km</b>, verify sensor label, connect to sensor cable, calibrate with test plate, connect and turn on transmitter.</li> </ol>
	<ol style="list-style-type: none"> <li>Place warning system on same side of tracks if working on one track only within sight &amp; hearing of workers, conduct siren &amp; light self test &amp; connect to transmitter(s).</li> <li>Record first rail traffic movement test for each sensor on ATWS Check-sheet.</li> <li>Conduct WP Pre-work briefing for lookout working with ATWS and confirm workers have seen and heard the warning.</li> <li>Start work when advised by the PO and move to the designated safe place when warned.</li> <li>When work is complete, and workers and equipment are in a safe place, turn off and pack up warning unit</li> </ol>
	<ol style="list-style-type: none"> <li>Access <b>Up Cess</b> to turn off and pack up transmitter unit(s).</li> </ol>
	<ol style="list-style-type: none"> <li>Access <b>Dn Cess</b> to turn off and pack up transmitter unit(s).</li> </ol>
	<ol style="list-style-type: none"> <li>Access <b>Up Cess</b> for all workers to leave the rail corridor via access gate <b>N00 26.682 km</b>.</li> <li>Tell Signaller at <b>Epping Panel</b> when work is completed and the workers and their equipment are clear of the Danger Zone.</li> </ol>

## Position of ATWS transmitter and sensor on Up Main North line at 27.122 KM

Image 1: Access Gate location **N00 27.084 U**

Image 2: Sensor and transmitter installation location

## Position of ATWS transmitter and sensor on Down Main North line at 26.140 KM

Image 1: Access Gate location **N00 26.682 U**

Image 2: Sensor and transmitter installation location



### Protection Officer's diary

[illegible]

# ATWS Worksite Protection for Beecroft condition and monitoring equipment maintenance

*(This page is optional and may be separated and given to the assigned operator to assist set-up of ATWS equipment. Refer also to Refer to "D2015-45354 Wireless ATWS (Automatic Trak Warning System)" for detailed instructions.)*

## Setup Stage 2: checklist for ATWS worksite warning unit

Step	Task Description	Operator Check
1	Confirm equipment is within inspection date	
2	Confirm Audible level	
3	Confirm and set Radio Channel for Warning unit	
4	Book in ATWS sensor 1	
5	Book in ATWS sensor 2	
6	Perform Worksite Warning Test with all ATWS sensor	
7	Ensure the workers have seen the visual warning and heard the audible warning	
8	Select and Confirm Channel for the Radio Transmitter	
9	Confirm worksite warning unit is operational with Installers and advise them to lock devices & remove key	

## Setup Stage 1: Checklist for ATWS transmitter and sensor

Step	Task Description	Installer Check
1	Verify Track Label for location of sensor as per the Protection Diagram and Photos in this document	
2	Confirm equipment is within inspection date	
3	Sensor direction is per Worksite Protection Diagram and photos in this document	
4	Connect sensor cable to junction box	
5	Confirm all batteries are fully charged	
6	Connect junction box to ZFS using channel T1-T4	
7	Commence calibration and automatic self- test	
8	Perform function test using test plate	
9	Confirm transmitter booked in to correct T- channel (T1-T4)	
10	Select & confirm channel for the radio transmitter (AU3 or AU4)	
11	Perform worksite warning test using test plate	
12	Lock device & remove key	