ATWS Worksite Protection for Lithgow Routine Network Maintenance Activities

WORK DESCRIPTION	Routine Maintenance activities
WPP NUMBER	WT08BWS 10171
SCOPE	Routine maintenance activities performed by Western Territory maintenance teams. • on the UP and DOWN Main lines between 153.124 km to 154.433 km • that does not involve the use of tools or equipment, or • 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.
AUTHORISATIONS	**Protection Officer, ATWS Operator (Operator) & ATWS Installer (Installer):** • Protection Officer (PO) Level 1 – 4, and • WATWS – Wireless Automatic Track Warning System **Dedicated Lookout:** (PO) Level 1 - 4, or Handsignaller 1 - 2
PERSONAL PROTECTIVE EQUIPMENT	• High visibility vest, boots, high visibility lookout sleeve
SAFETY CONTROLS – Lookout Working (ATWS) arrangements:	• Automatic Track Warning System (ATWS) - provides visual and audible warning for workers • ATWS sensor for DOWN direction running on the **Down Main West** line at **152.710 km** • ATWS sensor for UP direction running on the **Up Main West** line at **153.988 km** • Dedicated lookout(s) at the worksite for unsignalled movements. **IMPORTANT!** • This document must not be used to install or adjust the ATWS sensors • All sensors in the plan and shown on the diagram must be connected to transmit a warning
PRESTART REQUIREMENTS:	• Refer to D2015/45354 Wireless ATWS (Automatic Track Warning System) to install or remove sensors
FURTHER INFORMATION:	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 • NLA 212 Penrith - Wallerawang • NLA 218 Lithgow • NWT 300 Planning work in the Rail Corridor • NWT 310 Lookout Working • NGE 200 Walking in the Danger Zone • NPR 711 Using Lookouts • NPR 751 Calculating Minimum Warning Time • NPR 712 Protecting work from rail traffic on adjacent lines • NPR 752 Using Wireless Automatic Warning Systems • NGE 204 Network Communication • NPR 721 Spoken and Written Communication

UNCONTROLLED COPY WHEN PRINTED

Required ATWS Equipment		
Item	Description	Quantity
Aerial	Telescopic Aerial	3
Assembly Kit	Orange Bag with Tools	2
Battery ZA24-2.9	Small battery for Junction Box & Transmitter	8
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	0
Mobile Backpack	Harness for Device	0
Pouch	Pouch for small battery	4
Tripod	Tripod for Device	3
ZFS Radio Transmitter	Radio Transmitter Device	2
ZPW Warning Unit	Control & Warning Device	1

UNCONTROLLED COPY WHEN PRINTED

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.

UNCONTROLLED COPY WHEN PRINTED

Worksite Protection Pre-work Briefing

Briefing date: / /

Protection Officer details

name	signature	contact no.

Work location: **Lithgow**

Scope of work:

Worksite protection: **Lookout Working (ATWS)** Refer to Worksite Protection Plan for details

Hazards (e.g. environment, plant, equipment, human error)	**Controls** (to be implemented to eliminate or reduce the risk to the lowest practicable level)	**Person responsible for Control**
Crossing live lines	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
Accessing Danger Zone to conduct plate test	Use appropriate safety measures as validated by a PO. Refer to diagram for minimum safety assessment.	Qualified PO
Electricity	ATWS antennae not to encroach safe approach distance to overhead wiring	Operator
Slips, trips, falls carrying ATWS equipment	Use correct manual handling techniques, secure safety boots, clear obstacles for work area and agree a safe path.	All
Approaching rail traffic	• Lookout Working using approved ATWS as assessed in the plan & diagram. • 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
Ineffective ATWS warnings / Adjoining / surrounding worksites	• 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
Train warning time longer than expected (stopping points or ATWS equipment fault)	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: 95.1 Signal, 6/7 FRB Signal, 95.4 Signal	PO
Adjacent live lines	Remain within the tracks being protected by the ATWS	PO
Unsignalled movements in Yard limits	Position lookout(s) in safe place. Confirm minimum sighting distance can be achieved. Test effective communication and be within sight and hearing of the workers.	PO / lookouts

UNCONTROLLED COPY WHEN PRINTED

Second train warning cancelled in error	Nominate a qualified worker 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
Distraction	Obtain permission from PO to use electronic devices in the Danger Zone.	All
Obstructions to safe place	Agree on paths to reach designated safe places from the worksite.	PO
Electrical storms	Stop work immediately	All

☐ A final site inspection has been conducted immediately before commencing work, and any new hazards and controls have been included.

UNCONTROLLED COPY WHEN PRINTED

Workplace Supervisor details

name	signature	contact No.

Yes ☐ the Workplace Supervisor acknowledges that the Protection Officer will arrange worksite protection as required.

Participant acknowledgement

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. hold the applicable and current Rail Safety Worker Authorisation
2. have been briefed on the identified hazards and controls
3. have been briefed on the risks from adjacent lines and/or worksites
4. have been briefed on the planned worksite protection
5. understand the limits of the worksite
6. have been briefed on the contents of the Worksite Protection Plan
7. have been shown the worksite protection diagram or map

Name	Signature	Time of briefing: hh:mm	Amendment briefing: hh:mm and initial

UNCONTROLLED COPY WHEN PRINTED

Worksite Protection Plan – Lookout Working

Signaller details

	Coal Stage Panel	02 6354 9524

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 West line**		
between	**95.4 4th Home Signal**	**and**	**95.0 Starting Signal**
on the	**Down Main West line**		
between	**95.1 Home Signal**	**and**	**95.7 Home Signal**

Worksite assessment

The Lookout Working Prohibited Locations Register been consulted? Yes ☐

Warning method ATWS

Minimum Warning Time Calculations

Maximum track speed **90** km/h

Number of ATWS Sensors used 2 Position of ATWS Sensors **152.710** km and **153.988** km

Number of dedicated Lookouts used 1 Position of Lookouts **153.124** km To **153.433** km

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

See Time (S)	+	Move Time (M)	+	Safe Time	= Minimum Warning Time (MWT) (S+M+10 sec = MWT)		Track speed	Minimum Sighting Distance as calculated	
7 sec	+	**3** sec	+	**10** sec		**20** sec	**90** km/h	**500** metres	**Up Main West** line
7 sec	+	**3** sec	+	**10** sec		**20** sec	**70** km/h	**389** metres	**Down Main West** line

Dedicated Lookout

See Time (S)	+	Move Time (M)	+	Safe Time	= Minimum Warning Time (MWT) (S+M+10 sec = MWT)		Track speed	Minimum Sighting Distance as calculated
2 sec	+	3 sec	+	10 sec		15 sec	25 km/h	105 metres

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

Lookouts: **Up Cess for Up Main. Down Cess for Down Main.**

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

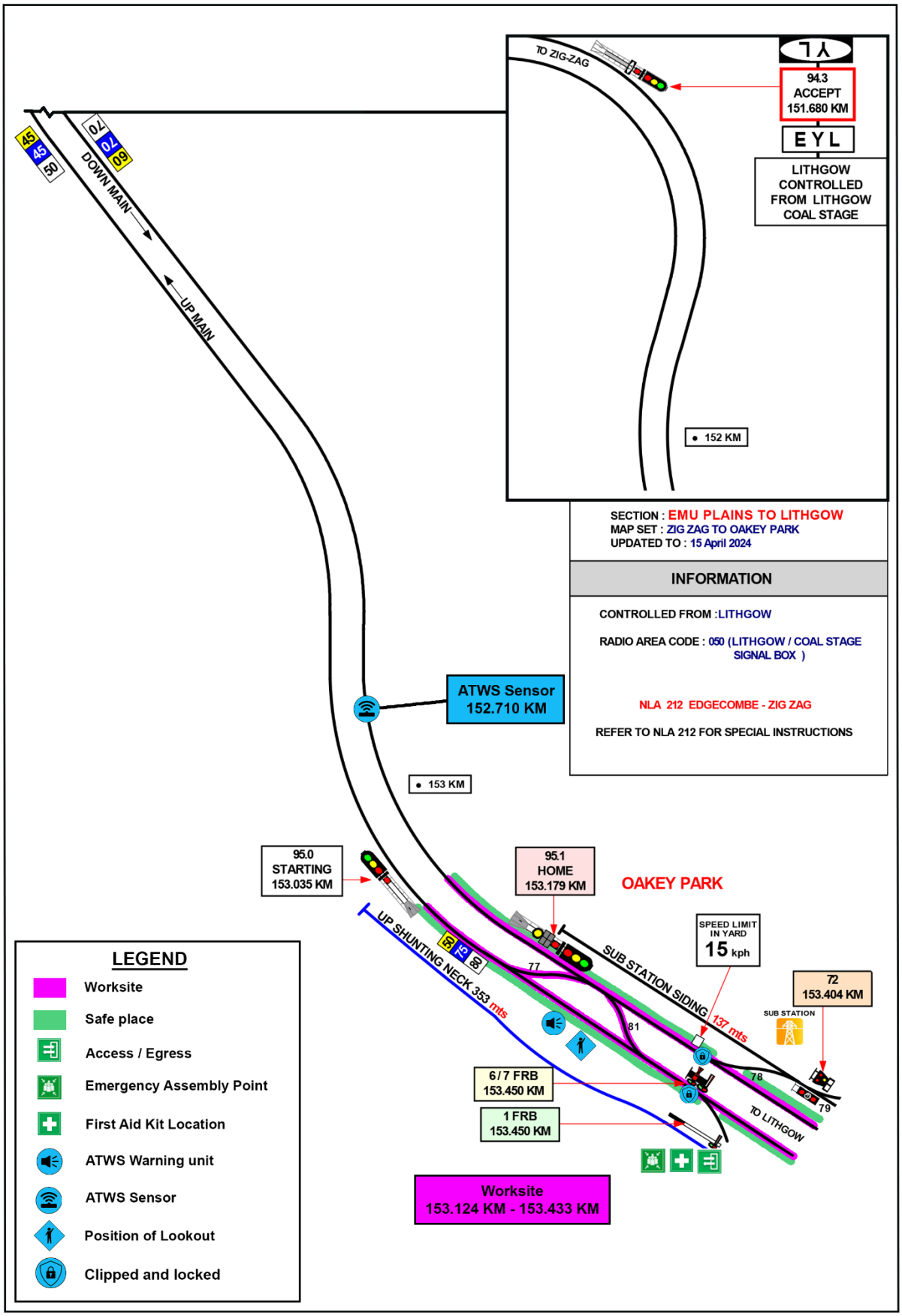
Confirm mandatory first train tests were completed for all sensors Yes ☐

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

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

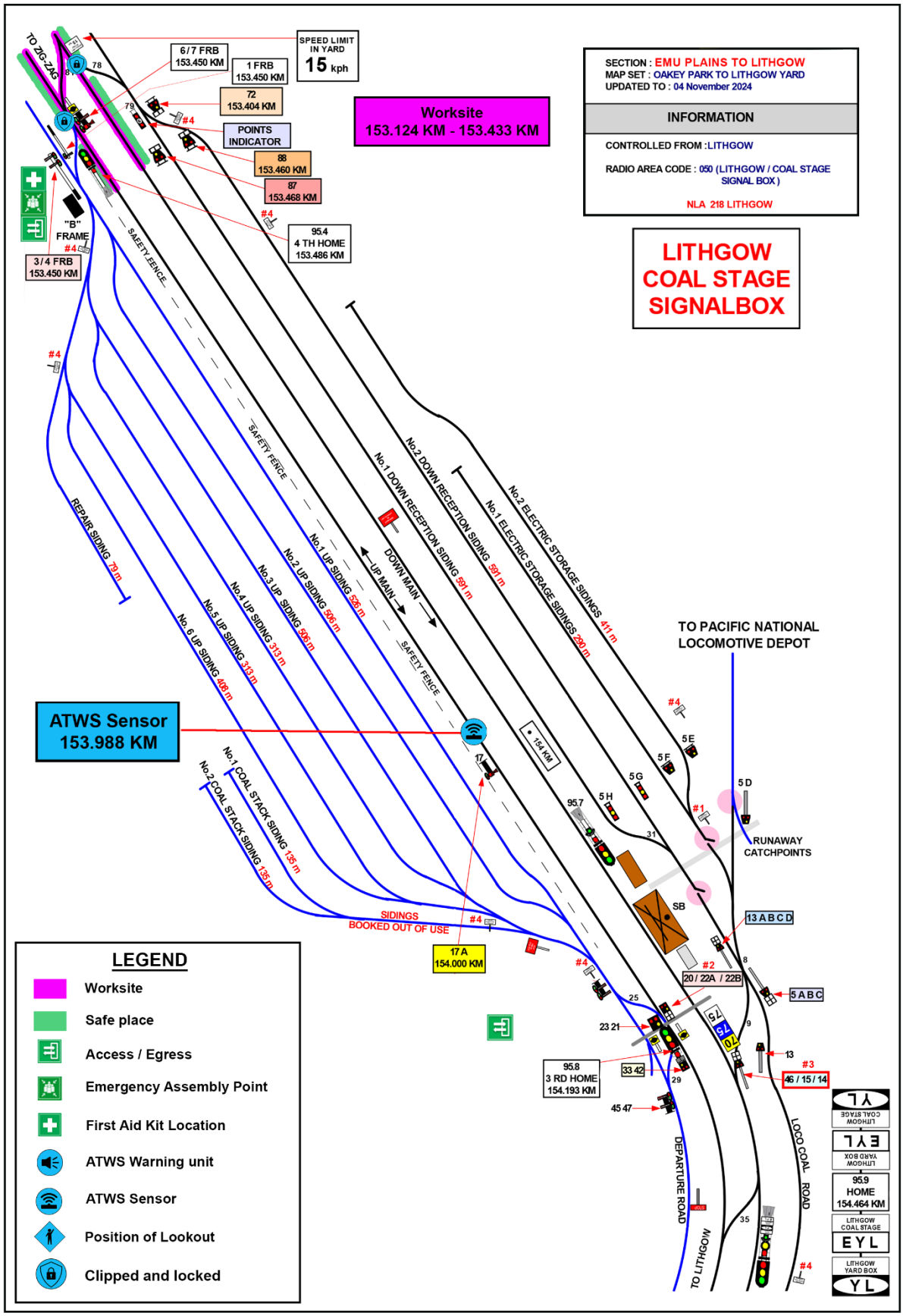
UNCONTROLLED COPY WHEN PRINTED

Diagram



UNCONTROLLED COPY WHEN PRINTED

Diagram



UNCONTROLLED COPY WHEN PRINTED

INSTRUCTIONS:	1. Workers enter the rail corridor via access gate **W00 153.385 U.** 2. Use assets to validate worksite location on **Up Main West** and **Down Main West** lines between **153.124 km** to **153.433 km** 3. Conduct WP Pre-work briefing to set-up ATWS. 4. Tell Signaller at Coal Stage Panel about the use of lookout working with ATWS.
	5. Access Up Cess **153.988 km**, verify sensor label & connect to sensor cable, calibrate with test plate, connect and turn on the transmitter.
	6. Access Down Cess **152.710 km**, verify sensor label, connect to sensor cable, calibrate with test plate, connect & turn on transmitter.
	7. Place warning system on same side of tracks if working on one track only within sight & hearing of workers, conduct siren & light self test, & connect to transmitter(s). 8. Clip and lock **78 points** and **2FRB points (B Frame)** to prevent rail traffic entry into the worksite. 9. Record first rail traffic movement test for each sensor on ATWS Check-sheet. 10. Conduct WP Pre-work briefing for lookout working with ATWS and confirm workers have seen and heard the warning. 11. Establish dedicated Lookouts. 12. Start work when advised by the PO and move to the designated safe place when warned. 13. When work is complete, and workers and equipment are in a safe place, turn off and pack up warning unit
	14. Access Up Cess to turn off and pack up transmitter unit(s).
	15. Access Down Cess to turn off and pack up transmitter unit(s).
	16. Access Up Cess for all workers to leave the rail corridor via access gate **W00 153.385 U.** 17. Tell Signaller at Coal Stage Panel when work is completed and the workers and their equipment are clear of the Danger Zone.

UNCONTROLLED COPY WHEN PRINTED

Setup checklist for ATWS worksite warning unit on the Main West line at 153.450 KM		
Installer name		
Step	**Task Description**	**Installer Initials**
1	Confirm equipment is within inspection date	
2	Verify Worksite Start Location with Kilometres	
3	Confirm Audible Level	
4	Confirm & Set Radio Channel for Warning Unit	
5	Book in ATWS sensor 1	
6	Book in ATWS sensor 2	
7	Perform Worksite Warning Test with all ATWS sensors	
8	Ensure the workers have seen the visual warning and heard the audible warning	
9	Select & Confirm Channel for the Radio Transmitter	
10	Confirm worksite warning unit is operational with Installers and advise them to lock devices & remove key Lock device & remove key	

UNCONTROLLED COPY WHEN PRINTED

(This page can be separated from the worksite protection plan to be given to the assigned installer)

Installation checklist for ATWS transmitter and sensor on Up Main West line at 153.988KM		
Installer name		
Step	**Task Description**	**Installer Initials**
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	

Position of ATWS transmitter and sensor on Up Main West line at 153.988 KM



Image 1: Transmitter and sensor installation location



Image 2: Sensor access using access gate **W00 153.037 U**

UNCONTROLLED COPY WHEN PRINTED

(This page can be separated from the worksite protection plan to be given to the assigned installer)

Installation checklist for ATWS transmitter and sensor on Down Main West line at 152.710 KM		
Installer name		
Step	**Task Description**	**Installer Initials**
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	

Position of ATWS transmitter and sensor on Down Main West line at 152.710 KM



Image 1: Transmitter and sensor installation location



Image 2: Sensor access point

UNCONTROLLED COPY WHEN PRINTED

Protection Officer's diary

Date	Time	Notes

UNCONTROLLED COPY WHEN PRINTED