

OFFICIAL



mainroads
WESTERN AUSTRALIA

Ministerial Statement Compliance Assessment Report

**Bunbury Outer Ring Road - South
Ministerial Statement 1191**

*Keeping
WA Moving*

2025 - 2026 Reporting Period

Printed copies are uncontrolled unless marked
otherwise. Refer to iRoads for current version.

D26#896110
August 2026

Contents

1	INTRODUCTION	4
1.1	Purpose of this Report.....	4
1.2	Project Description	5
2	PROJECT IMPLEMENTATION STATUS SUMMARY	7
2.1	Clearing during the Reporting Period	7
3	STATEMENT OF COMPLIANCE	9
4	DETAILS OF DECLARED COMPLIANCE STATUS	11
4.1	Subsidiary Plans	11
4.2	Retention of Compliance Statements.....	11
4.3	Public Availability of Compliance Reports	12
5	REFERENCES	13
	APPENDICES	14

Document Control

Report Compilation & Review	Position	Document Revision	Date
Author:	Environment Officer	Draft A	20/04/2026
Reviewer:	Environment Officer	Draft B	21/07/2026
Reviewer:	Principal Environment Officer	Draft C	11/08/2026
Approved:	Director Environment and Heritage	Rev 0	24/08/2026

1 INTRODUCTION

The Commissioner of Main Roads Western Australia (Main Roads) was granted conditional approval by the Minister for Environment for the construction and operation of the Bunbury Outer Ring Road Southern Section (the Project) under Part IV Division 2 (section 45) of the *Environmental Protection Act 1986* (EP Act).

The Proposal is subject to the implementation conditions of Ministerial Statement 1191 (MS 1191), which was issued on 31 May 2022.

Although the main carriageway (Wilman Wadandi Highway) was opened to public traffic on 16 December 2024, minor finishing works continue. Stage 1 of the Proposal has been completed, with subsequent project delivery continuing to be executed via phased, overlapping work packages. During the 31 May 2025 to 30 May 2026 reporting period, minor construction activities continued across the corridor, including ongoing civil finishing works, landscape revegetation and the staged delivery of ancillary environmental infrastructure.

1.1 Purpose of this Report

This Compliance Assessment Report (CAR) has been prepared to demonstrate compliance with the conditions set out in MS 1191 for the reporting period 31 May 2025 to 30 May 2026.

Condition 12-6 of MS 1191 requires an annual compliance assessment report to be submitted to the Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER).

MS 1191: Condition 12-6

The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO. The Compliance Assessment Report shall:

- (1) be endorsed by the proponent's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;*
- (2) include a statement as to whether the proponent has complied with the conditions;*
- (3) identify all potential non-compliances and describe corrective and preventative actions taken;*
- (4) be made publicly available in accordance with the approved Compliance Assessment Plan; and*
- (5) indicate any proposed changes to the Compliance Assessment Plan required by condition 12-1.*

This CAR incorporates a 12-month period from 31 May 2025 to 30 May 2026. This is the fourth CAR to be submitted under Ministerial Statement 1191.

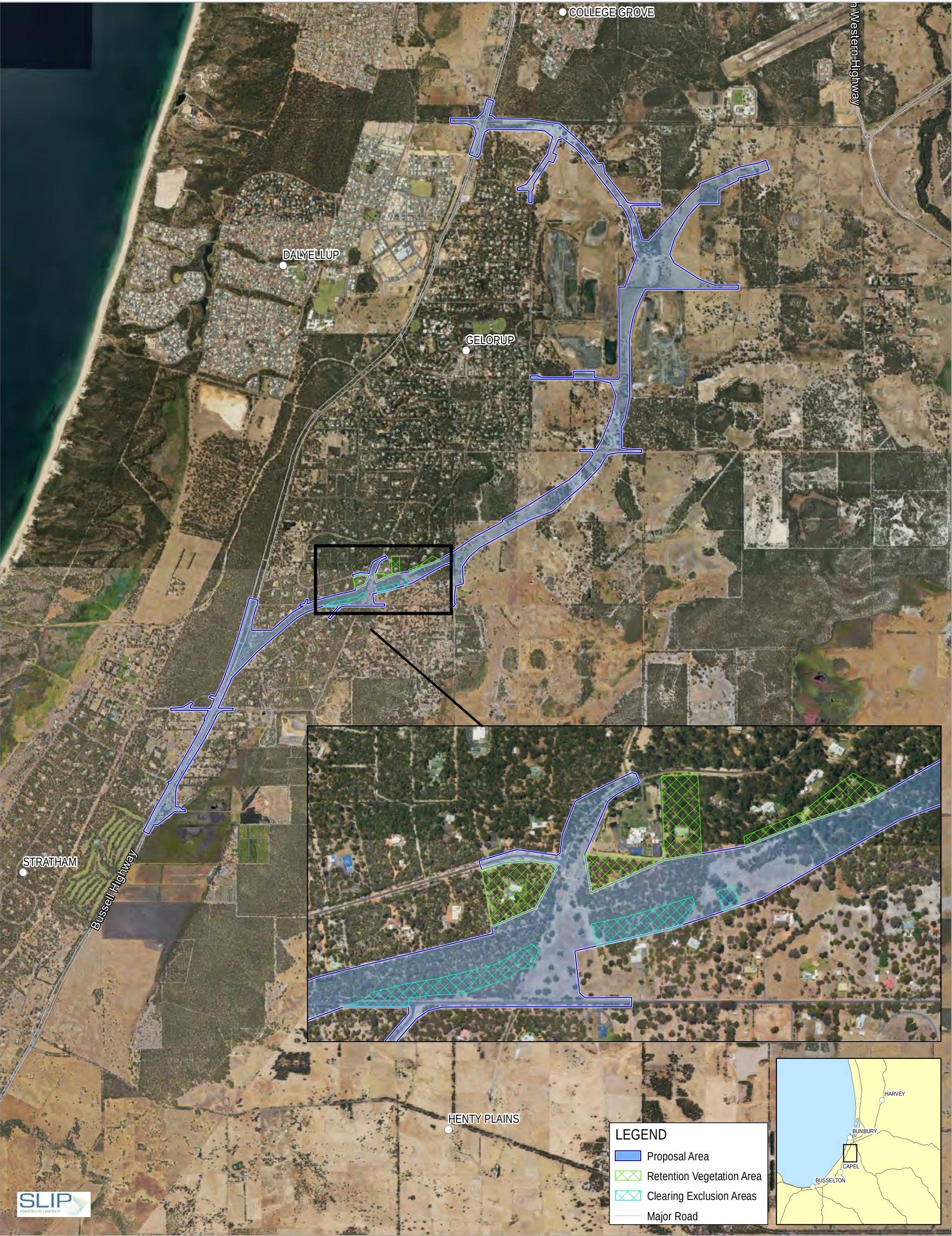
This CAR has been produced in accordance with condition M12.6 and has been endorsed by a representative for the Commissioner for Main Roads' delegate (see Appendix A – Statement of Compliance).

1.2 Project Description

The Proposal includes the construction and operation of 10.5 kilometres of the BORR Southern Section, located about 200 km south of Perth. The 200 hectare development envelope occurs mainly within the Shire of Capel (including the localities of Gelorup, North Boyanup and Statham) and a small component within the City of Bunbury. The location and physical extent of the Proposal are summarised in Table 1 and Figure 1.

Table 1. Location and authorised extent of physical and operational elements.

Element	Location	Authorised Extent
Freeway standard dual carriageway, grade separated interchanges and vehicle bridges, regional distributor roads, local road modifications, drainage structures, and other infrastructure, including but not limited to, noise walls, screen walls, fauna-crossings and land-bridges, possum rope-bridges, pedestrian underpass/overpass, principle shared path, lighting, fencing, signage, and safety barriers	Located within the Development Envelope as shown in Figure 1	Clearing and disturbance of no more than 71.5 ha of native vegetation within the 200 ha Development Envelope

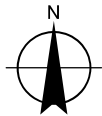


Paper Size ISO A3

0 250 500 750 1,000

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 Perth Coastal Grid 1994



Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

Proposal Area

FIGURE 1

2 PROJECT IMPLEMENTATION STATUS SUMMARY

2.1 Clearing during the Reporting Period

Construction of the Proposal (BORR Southern Section) commenced on 1 August 2022. No clearing of native vegetation has occurred during the reporting period. Table 2 outlines the clearing completed during previous reporting periods and the total area cleared for this current stage of the project. The clearing of key environmental aspects as identified in MS 1191 are all within the associated specified limits.

Table 2. Clearing metrics for all reporting periods.

Environmental Aspect	Area / quantity specified in Ministerial Statement 1191	Area / quantity cleared during the 2022 - 2023 reporting period	Area / quantity cleared during the 2023 – 2024 reporting period	Area / quantity cleared during this 2024 – 2025 reporting period	Total area / quantity cleared
Native vegetation	71.5 ha (within a 200 ha development envelope)	29.72 ha	18.47 ha	0.30 ha	48.49 ha
Conservation Category Wetlands	0.2 ha	0 ha	0.11 ha	0 ha	0.11 ha
Resource Enhancement Wetlands	1.4 ha	0.52 ha	0 ha	0 ha	0.52 ha
Vegetation representative of the Banksia Woodlands of the Swan Coastal Plain Priority Ecological Community (PEC) (Banksia Woodlands)	23.4 ha	11.49 ha	6.16 ha	0.05 ha	17.70 ha
Vegetation representative of the Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain PEC (Tuart Woodlands)	4.4 ha	2.06 ha	1.42 ha	0 ha	3.48 ha
Vegetation representative of the Southern Swan Coastal Plain <i>Eucalyptus gomphocephala</i> – <i>Agonis flexuosa</i> Woodlands PEC (Tuart-Peppermint Woodlands), overlapping the Tuart Woodlands PEC	4.5 ha	2.15 ha	1.42 ha	0 ha	3.58 ha
Western Ringtail Possum habitat	60.9 ha	24.39 ha	17.94 ha	0.19 ha	42.52 ha

OFFICIAL

MINISTERIAL STATEMENT 1191: BUNBURY OUTER RING ROAD SOUTH – COMPLIANCE ASSESSMENT REPORT – August 2026

Environmental Aspect	Area / quantity specified in Ministerial Statement 1191	Area / quantity cleared during the 2022 - 2023 reporting period	Area / quantity cleared during the 2023 – 2024 reporting period	Area / quantity cleared during this 2024 – 2025 reporting period	Total area / quantity cleared
Brush-tailed Phascogale habitat	39.2 ha	18.09 ha	11.72 ha	0.08 ha	29.89 ha
Black-stripe Minnow habitat (potential)	5.5 ha	2.16 ha	0.25 ha	0.04 ha	2.45 ha
Black Cockatoo habitat	60.9 ha	24.39 ha	17.94 ha	0.19 ha	42.52 ha
	No more than 1088 trees with a diameter at breast height of > 500 mm	397 trees	305 trees	0	702 trees
	no more than 11 trees with suitable nest hollows	3 trees	0 trees	0 trees	3 trees

3 STATEMENT OF COMPLIANCE

Refer to Appendix A for the Statement of Compliance.

3.1 2026 DWER Site Inspection

On 20 March 2026, DWER conducted a site inspection regarding Main Roads' compliance with the Habitat Fragmentation Management Plan (HFMP) under MS 1191. On 19 June 2026, DWER advised the inspection was an audit via issuing a letter of non-compliance, with a finding of five non-compliances relating to Conditions 6-1(1), 6-8, 6-10, 12-5, and 12-6(3)

On 26 July 2026, Main Roads responded to DWER refuting the five findings and Main Roads continues to refute these findings as the non-compliances stem from an administrative interpretation, rather than an objective evaluation of project delivery stages or on-ground ecological outcomes.

3.1.1 The Non-compliance Findings

The findings centre on a single fauna rope bridge across Lilydale Road. While the overhead structure is complete, Main Roads has deliberately delayed connecting the rope structure to adjacent canopy onto the southern road verge because no suitable canopy habitat currently exists on that side. The decision to not connection the rope bridge at this point in time is due to the following reasons:

- Preventing Predation Risks: Connecting the bridge into an open verge creates a dead-end landing site, forcing Western Ringtail Possums to the ground and exposing them to greater chance of fox and cat predation.
- Allowing for Biological Maturation: Main Roads has planted suitable native species within the reserve and planned the final connection to coincide with canopy maturation.
- Aligns with HFMP: Staging the connection aligns with the HFMP's adaptive management framework, which prioritises safe, continuous canopy connectivity over premature, unsafe connections.

Issuing non-compliances to Main Roads for implementing adaptive management via staged tree connections to ensure successfully use and habitat connection directly contradicts the objective of Condition 6-1 of MS 1191, which requires management actions to achieve functional, long-term ecological outcomes for the Western Ringtail Possum.

3.1.2 Misapplication of "Construction" vs. "Operation" Phases

DWER's findings rely on the assertion that fauna crossing measures must perform an immediate mitigation function the moment traffic operations commence. DWER has incorrectly equated initial carriageway opening with the complete termination of the construction phase. Main Roads rejects this position for two fundamental reasons:

- Construction Is Ongoing: Opening the Wilman Wadandi Highway to traffic in December 2024 did not instantly conclude the construction phase. Active civil works, intersection tie-ins, noise wall installations, and multi-year revegetation packages remain underway across the BORR Southern Section. Because the HFMP explicitly schedules rope bridge installations during the construction phase, Main Roads remains fully within its permitted delivery window.
- Landscape vs. Operational Metrics: Fauna connectivity objectives under MS 1191 and the HFMP are long-term, landscape-scale metrics designed to maintain genetic flow and

population persistence over the lifespan of the infrastructure. Their purpose is to reconnect fragmented habitat patches, not to perform a short-term operational function that must be present when the road is first opened to traffic.

During this reporting period, the majority of the project has transition to post-construction environmental monitoring, however, sections and aspects of the project are still in construction and still require construction management measures to be applied.

3.1.3 Non-Reporting Secondary Non-Compliances

Main Roads also rejects the secondary non-compliance findings under MS 1191 Condition 12-5 (failing to self-report a potential non-compliance within seven days) and Condition 12-6(3).

It is unreasonable to penalise a proponent for failing to self-report an issue that it reasonably and legitimately considers to be in full compliance. As the construction phase is ongoing and the revegetation required for the Lilydale Road rope bridge connection is actively establishing within that phase, no non-compliance occurred. Main Roads cannot self-report a "potential non-compliance" for an activity that is still actively being delivered within its permitted construction timeframe.

3.1.4 Broader Compliance Concerns

Main Roads will engage with DWER to resolve these findings and to establish standardised, cross-agency alignment on how project phases are defined.

Specifically, Main Roads will encourage DWER to recognise that traffic opening is a transport milestone, not the formal conclusion of the construction phase. Environmental phase transitions must reflect the completion of integrated civil and biological work packages, allowing living ecological assets time to mature before post-construction compliance triggers are applied.

3.1.5 2026 Compliance Reporting

Notwithstanding Main Roads' firm position refuting all five non-compliance findings, DWER has directed that the 2025 – 2026 CAR reflect their audit results. Consequently, while Main Roads maintains its objection of each finding, the compliance status in Appendices A and B have been updated to reflect DWER's position as directed.

3.2 Offset Management Non-compliance

One non-compliance with Condition 9 of MS 1191 has been recorded relating to the implementation of the Offset Management Plan; as documented in the MS 1191 Approval Audit Table (Appendix B) and Offset Management Plan Audit Table (Appendix F).

4 DETAILS OF DECLARED COMPLIANCE STATUS

A Statement of Compliance in relation to the conditions of MS 1191 for the period of this CAR has been included at Appendix A.

Compliance with the conditions of MS 1191 for the Proposal have been assessed and reported in Appendix B (Summary of Compliance with MS 1191 Conditions).

4.1 Subsidiary Plans

Conditions of MS1191 require the implementation of a number of subsidiary management plans outlined in Table 4 below and referenced in Appendix B.

Table 4. Subsidiary plans to be implemented in accordance with MS1191 conditions.

Condition	Management Plan Implementation
3.5	Phytophthora Dieback Management Plan
5.2	Construction Fauna Management Plan (CFMP)
6.3	Habitat Fauna Management Plan (HFMP)
7.2	Traffic Noise Management Plan (TNMP)
8.3	Amenity Management Plan (AMP)
9.4	Offset Management Plan (OMP)
12.1	Compliance Assessment Plan (CAP) (SWGA, 2022)

Compliance with the requirement to implement specific Environmental Management Plans in accordance with Conditions 5, 6, 8, 9 and 12 of MS 1191 has been assessed and reported using the Audit Tables in Appendices C, D, E, F, and G.

4.2 Retention of Compliance Statements

All CARs will be retained by Main Roads in accordance with relevant record keeping legislation, including:

- *State Records Act 2000*
- *Evidence Act 1906*
- *Electronic Transactions Act 2011*
- *Freedom of Information Act 1992.*

Main Roads will retain CARs (including all associated compliance assessments) and evidence used to verify compliance for the life of the proposal and then for a minimum of seven years after the end of the life of the proposal. Main Roads will continue to implement the proposal until the CEO has determined all conditions of MS 1191 have been satisfactorily met.

CARs will be retained on Main Roads Electronic Document and Records Management System that Main Roads operates in accordance with its obligations under the State Records Act 2000.

4.3 Public Availability of Compliance Reports

In line with MS 1191 Condition 13-1 and the OEPA's 2012 *Post Assessment Guideline 4: Making Information Publicly Available*, CARs will be made publicly available by publishing them on the Main Roads website. This will occur within sixty (60) days of the report being submitted to the CEO.

4 REFERENCES

OEPA. 2012. Post Assessment Guideline for Making Information Publicly Available, Post Assessment Guideline No. 4. August. Office of the Environmental Protection Authority. Perth, Western Australia.

SWGA, 2022. Compliance Assessment Plan, South West Gateway Alliance, Perth Western Australia.

APPENDICES

Appendix	Management Plan
Appendix A	MS 1191 Statement of Compliance
Appendix B	MS 1191 Audit Table
Appendix C	Construction Fauna Management Plan (CFMP)
Appendix D	Habitat Fauna Management Plan (HFMP)
Appendix E	Amenity Management Plan (AMP)
Appendix F	Offset Management Plan (OMP)
Appendix G	Traffic Noise Management Plan
Appendix H	Summary Table of Evidence
Appendix I	M2-4 Environmental Performance Report – Inland waters
Appendix J	M3-4 Environmental Performance Report – Flora and vegetation (PEC)
Appendix K	M4-7 Environmental Performance Report – Black Cockatoos
Appendix L	M5-3 Environmental Performance Report – Construction Fauna Management Plan

APPENDIX A: 1191 Statement of Compliance (Post Assessment Form 2)

Statement of Compliance**1 Proposal and Proponent Details**

Proposal Title	<i>Bunbury Outer Ring Road (Southern Section)</i>
Statement Number	<i>1191</i>
Proponent Name	<i>Main Roads Western Australia</i>
Proponent's Australian Company Number (where relevant)	<i>50 860 676 021</i>

2 Statement of Compliance Details

Reporting Period	<i>31/05/25 to 30/05/26</i>
------------------	-----------------------------

Implementation phase(s) during reporting period (please tick ✓ relevant phase(s))					
Pre-construction		Construction	✓	Operation	✓
				Decommissioning	

Audit Table for Statement addressed in this Statement of Compliance is provided at Attachment:	B
An audit table for the Statement addressed in this Statement of Compliance must be provided with this Statement of Compliance. The audit table must be prepared and maintained in accordance with the Office of the Environmental Protection Authority's (OEPA) <i>Post Assessment Guideline for Preparing an Audit Table</i> , as amended from time to time. The 'Status Column' of the audit table must accurately describe the compliance status of each implementation condition and/or procedure for the reporting period of this Statement of Compliance. The terms that may be used by the proponent in the 'Status Column' of the audit table are limited to the Compliance Status Terms listed and defined in The CAP.	

Were all implementation conditions and/or procedures of the Statement complied with within the reporting period? (please tick ✓ the appropriate box)			
No (please proceed to Section 3)	✓	Yes (please proceed to Section 4)	

Each page (including Attachment 2) must be initialed by the person who signs Section 4 of this Statement of Compliance. INITIALS: 

3 Details of Non-compliance(s) and/or Potential Non-compliance(s)

The information required Section 3 must be provided for each non-compliance or potential non-compliance identified during the reporting period covered by this Statement of Compliance.

Non-compliance/potential non-compliance

Which implementation condition or procedure was non-compliant or potentially non-compliant?

In June 2026 DWER informed Main Roads of 5 non-compliances they had identified during a site inspection in March 2026. These are detailed below:

- Condition 6.1 of Ministerial Statement 1191 –
"The proponent shall ensure the implementation of the proposal achieves the following environmental objectives:
 - 1 *minimise the impacts of habitat fragmentation that are attributable to the proposal on western ringtail possum; and*
 - 2 *minimise the impacts from predation that are exacerbated by the proposal on western ringtail possum."*
- Condition 6.8 of Ministerial Statement 1191 –
"The proponent shall implement the latest revision of the Habitat Fragmentation Management Plan approved by the CEO."
- Condition 6.10 of Ministerial Statement 1191 –
"The proponent shall continue to implement the Habitat Fragmentation Management Plan as approved by the CEO in writing, until the CEO has confirmed by written notice that the proponent has demonstrated that the environmental objectives and outcomes detailed in conditions 6-1 and 6-2 of the Habitat Fragmentation Management Plan have been achieved."
- Condition 12.5 of Ministerial Statement 1191 –
"The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known."
- Condition 12.6 of Ministerial Statement 1191 –
"The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the date of issue of this Statement and then annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO. The Compliance Assessment Report shall:
 - 1 *be endorsed by the proponent's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;*
 - 2 *include a statement as to whether the proponent has complied with the conditions;*
 - 3 *identify all potential non-compliances and describe corrective and preventative actions taken;*
 - 4 *be made publicly available in accordance with the approved Compliance Assessment Plan; and*
 - 5 *indicate any proposed changes to the Compliance Assessment Plan required by condition 12-1."*

During the finalisation of this CAR Main Roads also identified the following non-compliance:

- Condition 9 of Ministerial Statement 1191 – Offsets
 The approved Offsets Plan notes that the management actions across several Offset Sites will include fox baiting with 1080. No fox baiting was conducted at two sites during the reporting period. Baiting commenced in June 2026 at one site (Tredrea Offset Site) and is planned for spring 2026 at the second (Ducane Offset Site).

Each page (including Attachment 2) must be initialed by the person who signs Section 4 of this Statement of Compliance. INITIALS: 

Was the implementation condition or procedure non-compliant or potentially non-compliant?
All six conditions listed above were non-compliant, noting Main Roads refutes five of the non-compliances reported here.
On what date(s) did the non-compliance or potential non-compliance occur (if applicable)?
Conditions 6.1, 6.8, 6.10, 12.5 and 12.6 were initially identified by DWER as non-compliances in June 2026. Main Roads was required by DWER to report the non-compliances in this Compliance Assessment Report as part of the corrective actions stipulated by DWER. Main Roads refute the non-compliances and is still in discussions with DWER regarding the five non-compliances identified by DWER.
The non-compliance with Condition 9 was identified in late August 2026.

Was this non-compliance or potential non-compliance reported to the General Manager, OEPA?	
☒ Yes ☐ Reported to OEPA verbally Date _____ ☒ Reported to OEPA in writing Date <u>21/08/202</u>	☐ No

What are the details of the non-compliance or potential non-compliance and where relevant, the extent of and impacts associated with the non-compliance or potential non-compliance?
DWER Identified Non-Compliances In June 2026 DWER informed Main Roads of the five non-compliances they identified during a site inspection in March 2026. These non-compliances related to Conditions 6.1, 6.8, 6.10, 12.5 and 12.6. There are no environmental impacts associated with these non-compliances and Main Roads disagrees with the non-compliances that have been raised by DWER. Refer to Section 3 of the CAR for non-compliance information. Condition 9- Offsets: As per the approved Offset Plan, one of the offset areas is an offset for the residual impacts of the Proposal on fauna and fauna habitat (Ducane Offset Site), the other is for residual impact to Tuart Woodlands PEC and Tuart Peppermint Woodlands PEC (Tredrea Offset Site). The noted non-compliance relates to not undertaking 1080 fox baiting in the timeframe detailed in the Offset Plan at these two sites. 1080 fox baiting commenced in June 2026 at the Tredrea Offset Site which has previously recorded low fox activity. Fox baiting is planned to commence at the Ducane Offset Site in spring 2026. Any impacts to the Western Ringtail Possum (WRP) population at this site is likely to be insignificant based on the density and location of fox activity and can be more accurately assessed after the planned 2026 WRP survey.
What is the precise location where the non-compliance or potential non-compliance occurred (if applicable)? (please provide this information as a map or GIS co-ordinates)
DWER Identified Non-Compliances Lillydale Road, Gelorup, (Lillydale Rd Fauna Rope Bridge) (115.645 E, 33.386 S) Condition 9 – Offsets Lot 27 Tredrea Place, Myalup (Tredrea Offset Site) (115.7074127 E, 33.1139195 S) Lots 153, 267 and 268 Queelup Road Gelorup' offset (Ducane Offset Site) (115.677 E, 33.431 S)
What was the cause(s) of the non-compliance or potential non-compliance?

Each page (including Attachment 2) must be initiated by the person who signs Section 4 of this Statement of Compliance. INITIALS: MS

DWER Identified Non-Compliances

Following a site visit in March 2026, DWER advised it recorded five non-compliances. The primary issue stems from a regulatory interpretation of when an action has to be completed, which Main Roads considers doesn't apply yet. DWER determined that four further non-compliances should also be recorded due to this initial timing discrepancy:

- Failure to implement an approved plan
- Failure to implement a subsequent approved plan
- Failure to report a non-compliance within the 2024–2025 Compliance Assessment Report
- Failure to report a non-compliance to the CEO within 7 days.

Condition 9 - Offsets

Availability of resources to manage and implement feral animal control and delays in securing baiting approvals.

What remedial and/or corrective action(s), if any, were taken or are proposed to be taken in response to the non-compliance or potential non-compliance?

1080 fox baiting commenced at the Tredrea Offset Site in June 2026 and is planned to commence in the Ducane Offset Site in spring 2026. Ongoing monitoring and surveillance will continue.

What measures, if any, were in place to prevent the non-compliance or potential non-compliance before it occurred? What, if any, amendments have been made to those measures to prevent re-occurrence?

Main Roads is working with DWER to close out the five non-compliances that were recorded during the March 2026 site inspection.

Main Roads is currently working with other state agencies to ensure all baiting applications are secured, and no further delays are encountered.

Please provide information/documentation collected and recorded in relation to this implementation condition or procedure:

- in the reporting period addressed in this Statement of Compliance; and
- as outlined in the approved Compliance Assessment Plan for the Statement addressed in this Statement of Compliance.

(the above information may be provided as an attachment to this Statement of Compliance)

The Compliance Assessment Plan for MS 1191 was approved on 22/07/2022. The information provided above in Section 3 reflects the non-compliance information detailed in Section 2.5 of the approved CAP.

Proponent Declaration

I, Martine Schellema *Director Environment and Heritage* (full name and position title) declare that I am authorised on behalf of the Commissioner of Main Roads Western Australia (being the person responsible for the proposal) to submit this form and that the information contained in this form is true and not misleading.

Signature: Martine Schellema

Date: 24 August 2026

Please note that:

- it is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give or cause to be given information that to his knowledge is false or misleading in a material particular; and
- the Chief Executive Officer of the DWER has powers under section 47(2) of the *Environmental Protection Act 1986* to require reports and information about implementation of the proposal to which the statement relates and compliance with the implementation conditions.

4 Submission of Statement of Compliance

One hard copy and one electronic copy (preferably PDF on CD or thumb drive) of the Statement of Compliance are required to be submitted to the Chief Executive Officer, DWER, marked to the attention of Manager, Compliance (Ministerial Statements).

Please note, the DWER has adopted a procedure of providing written acknowledgment of receipt of all Statements of Compliance submitted by the proponent, however, the DWER does not approve Statements of Compliance.

5 Contact Information

Queries regarding Statements of Compliance, or other issues of compliance relevant to a Statement may be directed to Compliance (Ministerial Statements), DWER:

Manager, Compliance (Ministerial Statements)**Department of Water and Environmental Regulation**

Postal Address: Locked Bag 33
Cloisters Square
PERTH WA 6850

Phone: (08) 6364 7000

Email: compliance@dwer.wa.gov.au

6 Post Assessment Guidelines and Forms

Post assessment documents can be found at www.epa.wa.gov.au

Each page (including Attachment 2) must be initialed by the person who signs Section 4 of this Statement of Compliance. INITIALS: MS

ATTACHMENT 1

Table 1 Compliance Status Terms

Compliance Status Terms	Abbrev	Definition	Notes
Compliant	C	Implementation of the proposal has been carried out in accordance with the requirements of the audit element.	This term applies to audit elements with: - ongoing requirements that have been met during the reporting period; and - requirements with a finite period of application that have been met during the reporting period, but whose status has not yet been classified as 'completed'.
Completed	CLD	A requirement with a finite period of application has been satisfactorily completed.	This term may only be used where: - audit elements have a finite period of application (e.g. construction activities, development of a document); - the action has been satisfactorily completed; and - the Office of the Environmental Protection Authority (OEPA) has provided written acceptance of 'completed' status for the audit element.
Not required at this stage	NR	The requirements of the audit element were not triggered during the reporting period.	This should be consistent with the 'Phase' column of the audit table.
Potentially Non-compliant	PNC	Possible or likely failure to meet the requirements of the audit element.	This term may apply where during the reporting period the proponent has identified a potential non-compliance and has not yet finalized its investigations to determine whether non-compliance has occurred.
Non-compliant	NC	Implementation of the proposal has not been carried out in accordance with the requirements of the audit element.	This term applies where the requirements of the audit element are not "complete" have not been met during the reporting period.

Each page (including Attachment 2) must be initialed by the person who signs Section 4 of this Statement of Compliance. INITIALS: 

Compliance Status Terms	Abbrev	Definition	Notes
In Process	IP	Where an audit element requires a management or monitoring plan be submitted to the OEPA or another government agency for approval, that submission has been made and no further information or changes have been requested by the OEPA or the other government agency and assessment by the OEPA or other government agency for approval is still pending.	The term 'In Process' may not be used for any purpose other than that stated in the Definition Column. The term 'In Process' may not be used to describe the compliance status of an implementation condition and/or procedure that requires implementation throughout the life of the project (e.g. implementation of a management plan).

Each page (including Attachment 2) must be initialed by the person who signs Section 4 of this Statement of Compliance. INITIALS: ms

APPENDIX B: Summary of Compliance with MS 1191 Conditions

APPENDIX B: Summary of Compliance with MS 1191 Conditions

Audit Table assesses compliance of all the conditions associated with MS 1191 as per OEPA's 2012 Post Assessment Guideline No. 3 - *Post Assessment Guideline for Preparing a Compliance Assessment Report*.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1191:M1.1	Limitations and extent of proposal	When implementing the proposal, the proponent shall ensure the proposal does not exceed the following extents: Clearing and disturbance of no more than 71.5 ha of native vegetation within a 200 ha development envelope. The proponent shall implement the proposal to achieve the following environmental outcomes: (1) clear no more than: (a) 0.2 ha of Conservation Category Wetlands; and (b) 1.4 ha of Resource Enhancement Wetlands. (2) no project attributable impacts to the hydrological regime and water quality of the following values when compared to preconstruction baseline conditions:	Implement Proposal in accordance with limitations and extents	Annual Compliance Assessment Report (CAR)	Overall	Ongoing	Compliant	No clearing or disturbance has been undertaken during the reporting period. Stage 1 of the proposal has been completed. Refer to Table 2 of this CAR. No clearing or disturbance has been undertaken during the reporting period. Refer to Table 2.
1191:M2.1	Inland Waters	(a) Five Mile Brook (incorporating Multiple Use Wetland UFI-1163 and Conservation Category Wetland UFI-931); (b) Conservation Category Wetland (UFI-14478); (c) Resource Enhancement Wetlands (UFI-1117 and UFI-15493) and; (d) black-stripe minnow (<i>Galaxiella nigrostriata</i>) habitats defined and mapped in the proponent's Action Management Plan Conservation Significant Fauna (Revision 2 August 2021) that are within or adjoins the development envelope, except for the black-stripe minnow habitats permitted to be cleared in condition 4-1(1)(e).	Implement Conditions M2-2 and M2-3 Implement Proposal and clearing in accordance with limitations and extents of Condition M2-1(1)	Annual CAR	Overall	Ongoing	Compliant	There have been no project attributable impacts to the hydrological regime and water quality of the following values when compared to preconstruction baseline condition as: (a) Five Mile Brook (incorporating Multiple Use Wetland UFI-1163 and Conservation Category Wetland UFI-931); (b) Conservation Category Wetland (UFI-14478); (c) Resource Enhancement Wetlands (UFI-1117 and UFI-15493) and; (d) Black-stripe minnow (<i>Galaxiella nigrostriata</i>) habitats Refer to Appendix I: M2.4 Environmental Performance Report – Inland Waters.
1191:M2.2	Inland Waters	Prior to ground-disturbing activities, the proponent shall undertake monitoring of the hydrological regimes of the values listed in condition 2-1(2) and submit a report to the CEO about the preconstruction baseline conditions and predicted post-development hydrological regime.	Prepare Hydrological Regime Report	Baseline Hydrological Regime Report	Pre-construction	Prior to ground-disturbing activities	Compliant - Completed	The Baseline Hydrological Regime Report was submitted to DWER on the 18 July 2022, prior to ground-disturbing activities. Refer to Appendix I: M2-2, Baseline Hydrological Regime Report.
1191:M2.3	Inland Waters	The proponent shall continue to undertake monitoring of hydrological regime and water quality during and post-construction until the CEO is satisfied that the proponent has demonstrated the outcomes in condition 2-1(2) have been met.	Monitoring of hydrological regimes occur within sixty (60) of and water quality	Annual Hydrological Regime Report Annual CAR	Overall	During construction, and until the CEO is satisfied that the proponent has demonstrated the outcomes in	Compliant	Monitoring of hydrological regimes and water quality has been conducted during the reporting period. Refer to Appendix I: M2.4 Environmental Performance Report – Inland Waters.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:						
		(1) outline the monitoring that was undertaken during the implementation of the proposal;						
		(2) outline the results of the monitoring undertaken to report whether that the environmental outcomes specified in condition 2-1(2) were achieved;						
		(3) report whether that the outcomes in condition 2-1(2) were achieved; and						
		(4) outline any management actions undertaken during the implementation of the proposal to meet the outcomes in condition 2-1(2).						
1191:M2.4	Inland Waters		Prepare an annual Environmental Performance Report (EPR) in relation to Inland Waters	EPR as part of Annual CAR	Overall	By 31 August 2023 and annually thereafter	Compliant	Refer to Appendix I: M2.4 Environmental Performance Report – Inland Waters.
1191:M2.5	Inland Waters	The proponent shall not construct bridge footings, drainage structures and abutments within the area depicted in Figure 5.	The Proposal shall be designed and constructed in accordance with Condition M2-5	Annual CAR	Overall	Ongoing	Compliant	No construction of bridge footings, drainage structures and abutments has occurred within the area depicted in Figure 5 of the Approval.
1191:M3.1	Flora and Vegetation	The proponent shall implement the proposal to achieve the following environmental outcomes:	Implement Proposal and clearing in accordance with limitations and extents of Condition M3-1(1)					No clearing was undertaken during the reporting period.
		(1) clear no more than:						Refer to Table 2.
		(a) 23.4 ha of vegetation representative of the Banksia Woodlands of the Swan Coastal Plain Priority Ecological Community (PEC) (<i>Banksia Woodlands</i>);	Implement Conditions M3-2 and M3-3 with regard to Baseline and Annual PEC Reports	Annual CAR		Until the CEO is satisfied that the proponent has demonstrated the outcomes in Condition M3-1(2) have been met	Compliant	
		(b) 4.4 ha of vegetation representative of the Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain PEC (Tuart Woodlands); and	Implement Condition M3-5	Baseline and Annual PEC Reports	Overall			
		(c) 4.5 ha of vegetation representative of the Southern Swan Coastal Plain <i>Eucalyptus gomphocephala</i> – <i>Agonis flexuosa</i> Woodlands PEC (Tuart-Peppermint Woodlands), overlapping the Tuart Woodlands PEC.		Design, survey, and GIS files				
		(2) ensure there are no project attributable indirect impacts, when compared to preconstruction baseline conditions, to Banksia Woodlands, Tuart Woodlands, and Tuart-Peppermint Woodlands within twenty (20) metres outside the development envelope (defined in Figure 2a and Figure 2b) and within the clearing exclusion areas (defined in Figure 1).						There have been no project attributable indirect impacts, when compared to preconstruction baseline conditions, to Banksia Woodlands, Tuart Woodlands, and Tuart-Peppermint Woodlands.
								Refer to Appendix J: M3.4 Environmental Performance Report – Flora and Vegetation (PEC).
1191:M3.2	Flora and Vegetation	Prior to ground-disturbing activities, the proponent shall undertake monitoring of the values listed in condition 3-1(2) and submit a report about the preconstruction baseline conditions to	Prepare and submit Baseline PEC / TEC	Baseline PEC / TEC Report	Pre-construction	Prior to ground-disturbing activities	Compliant - completed	The Baseline PEC / TEC Report was submitted to DWER on the 18 July 2022,

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		the CEO.	Report		n			prior to ground-disturbing activities commencing. Refer to M3.2, Baseline PEC / TEC Report.
1191:M3.3	Flora and Vegetation	The proponent shall continue to undertake monitoring during and postconstruction until the CEO is satisfied that the proponent has demonstrated the outcomes in condition 3-1(2) has been met.	Annual PEC / TEC Report	Annual PEC Report Annual CAR	Overall	Until the CEO is satisfied that the proponent has demonstrated the outcomes in condition 3-1(2) has been met	Compliant	Refer to Appendix J: M3.4 Environmental Performance Report – Flora and Vegetation (PEC).
1191:M3.4	Flora and Vegetation	The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall: (1) outline the monitoring that was undertaken during the implementation of the proposal; (2) outline the results of the monitoring undertaken to report whether that the environmental outcomes specified in condition 3-1(2) were achieved; (3) report whether that the outcomes in conditions 3-1(1) and 3-1(2) were achieved; and (4) outline any management actions undertaken during the implementation of the proposal to meet the outcomes in conditions 3-1(1) and 3-1(2).	Prepare an annual Environmental Performance Report (EPR) in relation to Flora and Vegetation	EPR as part of Annual CAR	Overall	By 31 August 2023 and annually thereafter	Compliant	Refer to Appendix J: M3.4 Environmental Performance Report – Flora and Vegetation (PEC).
1191:M3.5	Flora and Vegetation	The proponent shall undertake the following actions within the development envelope during construction and for five (5) years post-construction: (1) implement hygiene protocols consistent with the Management of <i>Phytophthora cinnamomi</i> for Biodiversity Conservation in Australia, Part 2 National Best Practice Guidelines as amended or replaced from time to time; and (2) undertake weed control and management to prevent the introduction or spread of environmental weeds.	Implement Dieback Management Plan Implement weed control and management	Dieback Management Plan Annual CAR	Overall	During construction and for 5 years post-construction until 2030	Compliant	Refer to M3-5, SWGA Phytophthora Dieback Management Plan (SWGA-30-134-20-PLN-0001-0). Refer to M3-5, Phytophthora Dieback Re-Assessment Reports. Refer to M0, SWGA Construction Environmental Management Plan (SWGA-00-134-20-MPL-0002-0).
1191:M4.1	Terrestrial Fauna (Construction)	The proponent shall implement the proposal to achieve the following environmental outcomes: (1) clear no more than: (a) 60.9 ha of habitat for western ringtail possum; (b) 60.9 ha of black cockatoo foraging and breeding habitat; (c) 1088 black cockatoo potential nesting trees, and 11 trees with suitable hollows;	Implement Proposal and clearing in accordance with limitations and extents of Condition M4-1(1)	Annual CAR Design, survey, and GIS files	Overall	During implementation of the proposal	Compliant	Refer to M3-5, SWGA Topsoil and Mulch Management Plan (SWGA-30-134-20-PLN-0002-0). No clearing has been undertaken during the reporting period. Refer to Table 2.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		(d) 39.2 ha of habitat for south-western brush-tailed phascogale; and (e) 5.5 ha of habitat for black-stripe minnow.						No clearing has been undertaken during the reporting period.
		Prior to ground-disturbing activities the proponent shall undertake the following actions:						
1191:M4.2	Terrestrial Fauna (Construction)	(1) within seven (7) days prior to clearing, using a qualified and licensed terrestrial fauna spotter with experience in surveying for black cockatoos, inspect all potential nesting trees hollows within the development envelope to determine if any hollows are being used for nesting by black cockatoos; (2) if any hollows are in use by black cockatoos, the proponent shall not disturb or clear the nesting tree, or vegetation within a ten (10) metre radius of the nesting tree, until after the cockatoos have naturally completed nesting (young have fledged and dispersed) and an appropriately qualified terrestrial fauna spotter has verified that the hollow(s) are no longer being used by black cockatoos; and	Undertake Black cockatoo surveys in accordance with Condition M4-2(1) within 7 days prior to clearing Implement pre-clearing protocols of Conditions M4-2(1) and M4-2(2)	Survey Report Annual CAR	Pre-construction & Construction	Prior to ground-disturbing activities for each stage of clearing	Not Applicable	
		(3) within seven (7) days prior to clearing (or if staged, prior to each stage) implement pre-clearance protocols to minimise impacts to terrestrial fauna.						No clearing has been undertaken during the reporting period.
		During the construction of the proposal the proponent shall:	Engage appropriately qualified fauna spotters during clearing activities					No fauna spotters were required to be present on site during the reporting period as no clearing activities were undertaken.
		(1) ensure the presence of appropriately qualified fauna spotters during clearing activities;	Implement Condition M4-3(2) and M4-3(3)	Annual CAR	Construction	During the construction of the proposal	Not Applicable	
1191:M4.3	Terrestrial Fauna (Construction)	(2) not clear or cause any project attributable indirect impacts to the clearing exclusion areas as defined in Figure 1; and						No clearing or project attributable indirect impacts have occurred to vegetation within the clearing exclusion areas. Refer to Appendix J: M3.4 Environmental Performance Report – Flora and Vegetation (PEC).
		(3) ensure foraging species for black cockatoos are not planted within ten (10) metres of the road.		Annual CAR	Construction	During the construction of the proposal	Compliant	No Black Cockatoo foraging species have been planted within 10m of the road.
1191:M4.4	Terrestrial Fauna (Construction)	The proponent must install one artificial black cockatoo nesting hollow for each suitable hollow that cannot be avoided in the 11 trees with suitable hollows identified in condition 4-1(1)(c).	Install artificial black cockatoo nesting hollows	Annual CAR	Overall	Prior to commencement of the next black cockatoo breeding season following clearing	Compliant	No trees with potentially suitable hollows for Black cockatoo nesting were cleared during this reporting period. Clearing of a total of three (3) trees has occurred since clearing for the Proposal commenced in 2022.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1191:M4.5	Terrestrial Fauna (Construction)	Each artificial black cockatoo nesting hollow required by condition 4-4 must be installed prior to commencement of the next black cockatoo breeding season following clearing.	Install artificial black cockatoo nesting hollows required under Condition M4-4 prior to commencement of the next black cockatoo breeding season following clearing	Annual CAR	Overall	Prior to commencement of the next black cockatoo breeding season following clearing	Compliant	The installation of three (3) nesting hollows was reported in the 2022-2023 CAR. Three (3) artificial nesting hollows were installed in June 2023 in accordance with Condition 4.4. Refer to M4-4_4-6 Report: Installation of Four Artificial Nest Hollows, Ducane Reserve WA (Australian Black Cockatoo Specialists, June 2023). Clearing of a total of three (3) trees has occurred since clearing for the Proposal commenced (and at the end of this reporting period). Three (3) artificial nesting hollows were installed in June 2023 in consultation with DBCA, prior to the following breeding season in Spring. Refer to M4-4_4-6 Report: Installation of Artificial Nest Hollows, Ducane Reserve WA (Australian Black Cockatoo Specialists, June 2023).
1191:M4.6	Terrestrial Fauna (Construction)	The artificial black cockatoo nest hollow(s) required by condition 4-4 of must: (1) be installed at the locations identified by DBCA within property locations as set out and described in Table 1 of condition 9-2. (2) be designed and placed in accordance with the specifications details in How to design and place artificial hollows for Carnaby's cockatoo (DPAW Fauna Notes 2015), or any subsequent DBCA revision of this guideline; and (3) be monitored and maintained in accordance with the specifications detailed in How to monitor and maintain artificial hollows for Carnaby's cockatoo (DPAW Fauna Notes 2015), or any subsequent DBCA revision of this guideline, for a period of at least ten (10) years.	Design and install artificial black cockatoo nesting hollow required under Condition M4-4 in consultation with DBCA and according to the DBCA guidelines Monitor artificial nesting hollows for a period of 10 years	Correspondence from DBCA Annual CAR & EPR	Overall	Prior to commencement of the next black cockatoo breeding season following clearing and monitored for at least 10 years	Compliant	The installation of nesting hollows was reported in the 2022-2023 CAR. Three (3) artificial nesting hollows were installed in June 2023. All hollows were installed in accordance with DBCA's Fauna Note on Artificial Hollows for Black Cockatoos (2023). Annual monitoring for 2025 was completed in October and December. Refer to M4-4_4-6 Report: Installation of Artificial Nest Hollows, Ducane Reserve WA (Australian Black Cockatoo Specialists, June 2023). Refer to Appendix K: M4-7 Environmental Performance Report - Black Cockatoos.
1191:M4.7	Terrestrial Fauna (Construction)	The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, for a period of at least ten (10) years, that shall: (1) outline the monitoring and maintenance that was undertaken in accordance with the specifications detailed in How to monitor and maintain artificial hollows for Carnaby's cockatoo	Prepare an annual Environmental Performance Report (EPR) in relation to Condition M4-7	EPR as part of Annual CAR	Overall	Annually for at least 10 years	Compliant	Three (3) artificial nesting hollows have been required to be installed to date. Annual monitoring for 2025 was completed in October and December. Refer to M4-4_4-6 Report: Installation of Artificial Nest Hollows, Ducane Reserve WA

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1191:M5.1	Construction Fauna Management Plan	(DPAW Fauna Notes 2015), or any subsequent DBCA revision of this guideline; and (2) outline the results of the monitoring and maintenance undertaken. The proponent shall implement the proposal to achieve the following environmental objective: (1) during construction, minimise and manage project attributable adverse impacts to conservation significant terrestrial fauna including western ringtail possum and south-western brush-tailed phascogale.	Implement Construction Fauna Management (CFM) Plan	Annual CAR CFM Plan	Construction	During construction	Compliant	(Australian Black Cockatoo Specialists, June 2023). Refer to Appendix K: M4-7 Environmental Performance Report – Black Cockatoos. The CFMP has been implemented to reduce the risk of project attributable adverse impacts to conservation significant terrestrial fauna. Refer to Appendix C: Construction Fauna Management Plan Audit Table, for management actions and outcomes.
1191:M5.2	Construction Fauna Management Plan	The proponent shall prepare a Construction Fauna Management Plan and submit to the CEO prior to ground-disturbing activities.	Prepare CFM Plan	CFM Plan Annual CAR	Pre-construction	Prior to ground-disturbing activities	Compliant - Completed	Letter of approval for Construction Fauna Management Plan received from DWER on 22 July 2022 (DWER Ref: DWERT10554). A copy of the CFMP is available on the Main Roads website. Refer to M5-2, Construction Fauna Management Plan. Refer to Section 2.1 of the CFMP. Refer to Table 1-5 of the CFMP. Refer to Table 2-1 and Section 2.3 in the CFMP.
		This Plan shall: (1) specify the passive relocation management actions to be implemented prior to and during clearing; (2) define the low-risk clearing timeframe for western ringtail possum applicable to Category 1 Clearing Areas and append supplementary survey evidence to justify the chosen timeframe; (3) specify monitoring that: (a) includes a baseline survey to be undertaken within thirty (30) days prior to clearing (or if staged, prior to each clearing stage) to confirm presence/absence and number of western ringtail possum and south-western brush-tailed phascogale individuals within the development envelope and at receipt sites. The baseline survey shall be prepared and undertaken on advice of DBCA during the preparation of the Construction Fauna Management Plan; (b) records whether threatened or priority fauna is encountered during clearing, and reports to the CEO and DBCA within thirty (30) days after clearing (or each clearing stage) on the number of individuals relocated in accordance with any requirements of the lawful authority obtained under the <i>Biodiversity Conservation Act 2016</i>; (c) evaluates the suitability, adequacy, and effectiveness of passive relocation management actions at reducing						

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		impacts to western ringtail possum individuals displaced by clearing from Category 1 Clearing Areas defined in Figure 3;						
		(d) evaluates impacts to residential western ringtail possum individuals at revegetation sites; and						
		(e) uses monitoring methods including, but not limited to, radio telemetry with robust sample sizes (the minimum number of tagged animals to be determined in consultation with DBCA).						
		(4) identify and spatially define the study area(s) and reference sites proposed for monitoring and evaluation and provide rationale for the location of the sites;						Refer to Figures 7 – 9 in the CFMP.
		(5) specify management actions: management targets; monitoring locations, methodologies, indicators, and timing; and actions and investigations in the event of a failure to meet a management target to demonstrate that the objective in condition 5-1 will be met; and						Refer to Tables 2-1, 2-2, and 2-3 of the CFMP for management actions, management targets and monitoring locations.
		(6) be prepared in consultation with the DBCA and in accordance with any requirements of a lawful authority obtained under the Biodiversity Conservation Act 2016.						Refer to Section 4 of the CFMP.
		The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:						
		(1) outline the monitoring that was undertaken during the implementation of the Construction Fauna Management Plan required in condition 5-2;	Prepare an annual Environmental Performance Report (EPR) in relation to Construction Fauna Management (Condition M5-3)	EPR as part of Annual CAR	Overall	By 31 August 2023 and annually thereafter	Compliant	Refer to Appendix L: M5.3 Environmental Performance Report – CFMP.
1191:M5.3	Construction Fauna Management Plan	(2) outline the results of the monitoring undertaken to report whether that the environmental objective specified in condition 5-1(1) was achieved;						
		(3) report whether that the objective in condition 5-1(1) was achieved; and						
		(4) outline any management actions undertaken during the implementation of the Construction Fauna Management Plan required in condition 5-2 to meet the objective in condition 5-1(1).						
1191:M5.4	Construction Fauna Management Plan	The proponent shall not commence ground-disturbing activities until the CEO has confirmed in writing that the Construction Fauna Management Plan satisfies the requirements of condition 5-2.	Prepare and submit CFM Plan Approval of CFM Plan by CEO	Correspondence from CEO Annual CAR	Pre-construction	Prior to ground-disturbing activities	Compliant - Completed	Letter of approval for CFMP (Rev1A: July 2022) received from DWER on 22 July 2022 (DWER Ref: DWERT10554). A copy of the CFMP is available on the Main Roads website. Refer to M5-4, Construction Fauna Management Plan – Approval.
1191:M5.5	Construction Fauna Management Plan	The proponent shall implement the latest revision of the Construction Fauna Management Plan approved by the CEO.	Implement latest version of CFM Plan	Annual CAR CFM Plan	Overall	Until the CEO has confirmed that the proponent has	Compliant	Refer to Appendix C: Construction Fauna Management Plan (CFMP) Audit Table.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1191:M5.6	Construction Fauna Management Plan	The proponent: (1) may review and submit proposed amendments to the Construction Fauna Management Plan; or (2) shall review and submit proposed amendments to the Construction Fauna Management Plan when directed by the CEO.	Undertake baseline fauna survey for WRP and BPh within 30 days prior to clearing Record and report priority fauna encountered during clearing Monitoring including radio-telemetry surveys	Pre-clearing fauna survey reports Priority fauna records and reports Monitoring surveys Correspondence with CEO	Overall	demonstrated that the requirements of the Construction Fauna Management Plan have been achieved	Not applicable	Refer to Appendix L: M5.3 Environmental Performance Report – CFMP.
1191:M5.7	Construction Fauna Management Plan	The proponent shall continue to implement the Construction Fauna Management Plan as approved by the CEO in writing, until the CEO has confirmed by written notice that the proponent has demonstrated that the requirements of the Construction Fauna Management Plan have been achieved.	CFM Plan reviewed as required Implement CFM Plan	CFM Plan Annual CAR Correspondence from CEO	Overall	As required or when directed by the CEO Until the CEO has confirmed that the proponent has demonstrated that the requirements of the Construction Fauna Management Plan have been achieved	Compliant	Refer to Appendix C: Construction Fauna Management Plan (CFMP) Audit Table.
1191:M6.1	Habitat Fragmentation Management Plan	The proponent shall ensure the implementation of the proposal achieves the following environmental objectives: (1) minimise the impacts of habitat fragmentation that are attributable to the proposal on western ringtail possum; and (2) minimise the impacts from predation that are exacerbated by the proposal on western ringtail possum.	Implement Habitat Fragmentation Management (HFM) Plan in accordance with Condition M6-3	Annual CAR HFM Plan	Overall	Ongoing	Non-compliant	Refer to Section 3 and Appendix D: Habitat Fragmentation Management Plan (HFMP) Audit Table.
1191:M6.2	Habitat Fragmentation Management Plan	The proponent shall ensure the implementation of the proposal achieves the following environmental outcome: abundance and persistence of the western ringtail possum in the receiver sites returns to pre-disturbance levels within a maximum of fifteen (15) years from the commencement of construction.	Implement HFM Plan	Annual CAR HFM Plan	Overall	Within a maximum of 15 years from the commencement of construction	Compliant	Refer to Appendix D: Habitat Fragmentation Management Plan (HFMP) Audit Table. Refer to Appendix L: M5.3 Environmental Performance Report – CFMP.
1191:M6.3	Habitat Fragmentation Management Plan	The proponent shall prepare a Habitat Fragmentation Management Plan and submit to the CEO prior to ground-disturbing activities.	Prepare and submit HFM Plan, including consultation with DBCA	HFM Plan Consultation with DBCA	Pre-construction	Prior to ground-disturbing activities	Compliant - Completed	Habitat Fragmentation Management Plan (HFMP) submitted to CEO on 22 July 2022. A copy of the HFMP is available on the Main Roads website. Refer to M6-3, Habitat Fragmentation

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
								Management Plan.
		This Plan shall:					Compliant	The approved HFMP has been developed to achieve the objectives of Conditions 6.1 and 6.2 and the ongoing monitoring will demonstrate these objectives have been met.
		(1) when implemented, substantiate, and ensure that conditions 6-1 and 6-2 are being met;						Refer to Appendix D: Habitat Fragmentation Management Plan (HFMP) Audit Table.
								Refer to Appendix L: M5.3 Environmental Performance Report – CFMP.
		<i>Fauna crossings, land-bridges and fragmentation</i>					Compliant	Refer to Section 2.3 of the HFMP.
		(2) specify the locations, dimensions and designs of fauna crossings to reconnect terrestrial fauna habitats, including tree-canopy connections to fauna crossings for western ringtail possum (and brush-tailed phascogale);						
		(3) specify the locations and designs of a minimum of two (2) fauna land bridges, which are to be:					Compliant	Refer to Section 2.3.2 of the HFMP.
		(a) a minimum width of five (5) metres at the Yalinda Drive traffic bridge; and						
		(b) between five (5) and ten (10) metres at the dedicated fauna land bridge east of Yalinda Drive (to be determined in consultation with DBCA);					Compliant	Refer to Section 2.3.2.2 and 2.3.2.3 of the HFMP.
		(4) specify the revegetation and maintenance requirements of the fauna land bridges to maximise utilisation by western ringtail possums and ensure revegetation is self-sustaining or otherwise managed to ensure its ongoing survival;					Compliant	Refer to Section 2.3.3 of the HFMP.
		(5) specify monitoring methodologies to evaluate the effectiveness and utilisation of fauna crossings and fauna land bridges by western ringtail possum against the objectives in condition 6-1 which must include, but not be limited to, monitoring of DNA scat analysis and camera-monitoring;					Compliant	Refer to Section 2.3.3 of the HFMP.
		(6) specify monitoring methodologies to evaluate the project attributable effects of fragmentation on the demographics and genetics of the local western ringtail possum population and the effectiveness of minimisation measures to demonstrate whether the objective in condition 6-1(1) and outcome in condition 6-2 will be met; Predator control;					Compliant	Refer to Table 2.4 of the HFMP.
		(7) specify actions to undertake targeted predator control to reduce predation impacts to conservation significant fauna, to be implemented:						
		(a) one (1) month prior to clearing;						
		(b) during construction of the proposal; and						
		(c) at entrances/exits to fauna crossings and fauna land bridges for a minimum of five (5) years post-construction, subject to the five (5) yearly review						

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		required by condition 6-3(12); Abundance and persistence of western ringtail possum;						
		(8) specify monitoring methodologies to evaluate the abundance and persistence of the western ringtail possum at the receipt sites to demonstrate whether the outcome in condition 6-2 will be met; Protection and enhancement of adjacent habitat;					Compliant	Refer to Table 2.4 of the HFMP.
		(9) demonstrate how the habitat within the clearing exclusion areas (excluding the 'Grey Giant' Heritage Place No. 26059 site) and vegetation retention areas (defined in Figure 4) in Gelorup will be maximised for benefits to western ringtail possums and, where relevant, include provisions to establish revegetation of degraded areas;					Compliant	Refer to Section 2.6.1 of the HFMP.
		(10) demonstrate how the habitat within the clearing exclusion areas (excluding the 'Grey Giant' Heritage Place No. 26059 site) and vegetation retention areas (defined in Figure 4) in Gelorup will be maximised for benefits to western ringtail possums and, where relevant, include provisions to establish revegetation of degraded areas;					Compliant	Refer to Section 2.6.1 of the HFMP.
		(11) outline the long-term management and protection mechanism of the clearing exclusion areas and the vegetation retention areas as defined in Figure 4; General plan provisions;					Compliant	Refer to Section 2.6.2 of HFMP.
		(12) be implemented for a minimum of fifteen (15) years post-construction, or otherwise agreed to by the CEO and on advice of DBCA following review of effectiveness every five (5) years;					Compliant	Not required at this stage. Review not yet required, refer to Section 3.3 for details on the HFMP review schedule.
		(13) specify management actions; management targets; monitoring locations, methodologies, indicators, and timing; and contingency actions and investigations in the event of a failure to meet a management target to demonstrate that the objectives in condition 6-1 and outcome in condition 6-2 will be met; and					Compliant	Refer to Table 2-1, 2-2, and 2-3 of the HFMP.
		(14) be prepared in consultation with DBCA and in accordance with any requirements of a lawful authority obtained under the <i>Biodiversity Conservation Act 2016</i> .					Compliant	Refer to Section 4 of the HFMP.
1191:M6.4	Habitat Fragmentation Management Plan	The proponent shall include a report of a peer review carried out by an independent person or independent persons with suitable technical experience to review the Draft Habitat Fragmentation Management Plan, required under condition 6-3, to report on the adequacy of that content to achieving the objectives and outcome specified in conditions 6-1 and 6-2.	Engage an independent person to undertake peer review Submit peer review of HFM Plan to CEO	Peer review of HFM Plan Correspondence with CEO	Pre-construction	Prior to ground-disturbing activities	Compliant - Completed	A Peer Review of the HFMP was completed on 8 June 2022, prior to ground disturbance commencing. Refer to Appendix C of the HFMP for the Peer Review Report.
1191:M6.5	Habitat Fragmentation Management Plan	The proponent shall submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, following the review of effectiveness every five (5) years, required by condition 6-3(12), that shall:	Prepare an Environmental Performance Report (EPR) in relation to the HFM Plan	EPR as part of Annual CAR	Overall	Every 5 years	Not applicable	Not required at this stage. Environmental Performance Report of the HFMP is not required until 2027.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1191:M6.6	Habitat Fragmentation Management Plan	(1) outline the monitoring that was undertaken during the implementation of the Habitat Fragmentation Management Plan required in condition 6-3; (2) outline the results of the monitoring undertaken to report whether that the environmental objectives and outcome specified in conditions 6-1 and 6-2 was achieved; (3) report whether that the objectives and outcome specified in conditions 6-1 and 6-2 was achieved; and (4) outline any management actions undertaken during the implementation of the Habitat Fragmentation Management Plan required in condition 6-3 to meet the objectives and outcome specified in conditions 6-1 and 6-2. The proponent shall include a report of a peer review carried out by an independent person or independent persons with suitable technical experience to review the Environmental Performance Reports, required under condition 6-5, with the report and to report on the adequacy of that content to achieving the objectives and outcome specified in conditions 6-1 and 6-2.	Peer review of EPR required under Condition M6-5	Peer review and report	Overall	Every 5 years	Not Applicable	Not required at this stage. Peer Review of EPR of HFMP is not required until 2027.
1191:M6.7	Habitat Fragmentation Management Plan	The proponent shall not commence ground-disturbing activities until the CEO has confirmed in writing that the Habitat Fragmentation Management Plan satisfies the requirements of condition 6-3.	Prior to ground-disturbing activities, confirmation from CEO that HFM Plan satisfies Condition M6-3	HFM Plan Correspondence from CEO	Pre-construction	Prior to ground-disturbing activities	Compliant - Completed	Letter of approval for HFMP (Rev1A; July 2022) was received from DWER on 22 July 2022 (DWER Ref: DWERT10552). Refer to M6-7, Habitat Fragmentation Management Plan – Approval.
1191:M6.8	Habitat Fragmentation Management Plan	The proponent shall implement the latest revision of the Habitat Fragmentation Management Plan approved by the CEO.	Implement latest version of HFM Plan	HFM Plan Annual CAR	Overall	When HFM Plan has been updated	Non-compliant	Refer to Section 3 and Appendix D: Habitat Fragmentation Management Plan (HFMP) Audit Table.
1191:M6.9	Habitat Fragmentation Management Plan	The proponent: (1) may review and submit proposed amendments to the Habitat Fragmentation Management Plan; or (2) shall review and submit proposed amendments to Habitat Fragmentation Management Plan when directed by the CEO.	Review HFM Plan as required	HFM Plan Correspondence from CEO	Overall	As required or when directed by the CEO	Not Applicable	Not required at this stage.
1191:M6.10	Habitat Fragmentation Management Plan	The proponent shall continue to implement the Habitat Fragmentation Management Plan as approved by the CEO in writing, until the CEO has confirmed by written notice that the proponent has demonstrated that the environmental objectives and outcomes detailed in conditions 6-1 and 6-2 of the Habitat Fragmentation Management Plan have been achieved.	Implement HFM Plan	Annual CAR HFM Plan Correspondence from CEO	Overall	Until the CEO has confirmed that the proponent has demonstrated that the objectives and outcomes in conditions 6-1 and 6-2 of the Habitat Fragmentation Management Plan have been achieved	Non-compliant	Refer to Section 3 and Appendix D: Habitat Fragmentation Management Plan (HFMP) Audit Table.
1191:M7.1	Social Surroundings	The proponent shall implement the proposal to meet the following environmental objective:	Implement Conditions M7-2 to	Annual CAR	Overall	Ongoing	Compliant	Refer to Appendix G: Traffic Noise Management Plan (TNMP) Audit Table.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
	(Noise)	(1) minimise operational noise impacts on existing noise sensitive receptors, as far as practicable.	M7-7	TNM Plan				
1191:M7.2	Social Surroundings (Noise)	At least six (6) months prior to the operation of the proposal and in order to meet the requirements of condition 7-1, the proponent shall prepare a Traffic Noise Management Plan to include: (1) outdoor noise management targets; (2) indoor noise management targets to apply to noise sensitive receptors where the construction of noise walls is not feasible or practicable; (3) the noise management actions to ensure the noise management targets are met during the operation of the proposal; (4) where noise walls will be constructed, the location, height, and timing of construction of the walls; (5) where acoustic treatment of houses will be implemented, the standard of treatments, timing, and evidence of consultation with affected stakeholders; (6) road design measures to minimise noise emissions where relevant and appropriate, including low noise road surfaces and selection of appropriate bridge expansion joints; (7) post-construction noise monitoring to demonstrate that noise management actions meet the relevant outdoor noise management targets; and (8) contingency actions in the event relevant noise management targets are not met.	Prepare Traffic Noise Management (TNM) Plan	Annual CAR TNM Plan	Construction	At least 6 months prior to the operation of the proposal	Compliant - Completed	Traffic Noise Management Plan (TNMP) was submitted to DWER on 15 August 2024 and approved on 3 December 2024.
1191:M7.3	Social Surroundings (Noise)	The Traffic Noise Management Plan shall be approved by notice in writing from the CEO prior to the commencement of operation.	Submission of TNM Plan	Correspondence confirming approval of TNM Plan Annual CAR TNM Plan	Construction	Prior to the commencement of operation	Compliant - Completed	The Traffic Noise Management Plan was approved by DWER CEO on 3 December 2024.
1191:M7.4	Social Surroundings (Noise)	The proponent: (1) may review and revise the Traffic Noise Management Plan; or (2) shall review and revise the Traffic Noise Management Plan when directed by the CEO by notice in writing.	TNM Plan will be reviewed annually and revised if required or as directed by the CEO	Annual CAR TNM Plan	Overall	As required or when directed by the CEO	Compliant	The Traffic Noise Management Plan annual internal review was conducted in October 2025, no changes to the plan were required.
1191:M7.5	Social Surroundings (Noise)	The proponent shall implement the approved Traffic Noise Management Plan, or the most recent version, which the CEO has confirmed by notice in writing satisfies the requirements of condition 7-2.	Implement TNM Plan	Annual CAR TNM Plan	Overall	Until the CEO has confirmed that the proponent has demonstrated that the objective in condition 7-1 is being and will continue to be met	Compliant	Refer to Appendix G: Traffic Noise Management Plan (TNMP) Audit Table.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1191:M7.6	Social Surroundings (Noise)	The proponent shall continue to implement the Traffic Noise Management Plan, or any subsequently approved revisions until the CEO has confirmed by notice in writing that the proponent has demonstrated that the objective in condition 7-1 is being and will continue to be met.	Implement Traffic Noise Management Plan	Annual CAR TNM Plan	Overall	Until the CEO has confirmed that the proponent has demonstrated that the objective in condition 7-1 is being and will continue to be met	Compliant	Refer to Appendix G: Traffic Noise Management Plan (TNMP) Audit Table.
1191:M7.7	Social Surroundings (Noise)	In the event of failure to implement management actions detailed in the approved Traffic Noise Management Plan, the proponent shall meet the requirements of condition 12-6 (Compliance Reporting) and shall immediately implement management actions to meet the requirements of condition 7-1.	Traffic Noise Corrective Actions Report. Revised Traffic Noise Management Plan	Annual CAR Traffic Noise Corrective Actions Report	Overall	Immediately implement management actions	Not Applicable	Not required at this stage.
1191:M8.1	Social Surroundings (Amenity Management Plan)	The proponent shall demonstrate that the proposal is designed and constructed in order to meet the following environmental objective: (1) minimise the impacts to social connectivity and visual amenity.	Implement Amenity Management (AM) Plan in accordance with Condition M8	AM Plan	Overall	Ongoing	Compliant	Refer to Appendix E: Amenity Management Plan (AMP) Audit Table.
1191:M8.2	Social Surroundings (Amenity Management Plan)	The proponent shall demonstrate that the proposal is implemented to meet the following environmental outcome: (1) ensure no project attributable direct or indirect impacts to significant trees.	Implement Amenity Management (AM) Plan in accordance with Condition M8 Conduct surveys and monitoring of significant trees	Annual CAR AM Plan Significant Tree Survey Reports	Overall	Ongoing	Compliant	No significant trees have been impacted. Refer to Appendix J: M3-4 Environmental Performance Report – Flora and Vegetation (PEC).
1191:M8.3	Social Surroundings (Amenity Management Plan)	The proponent shall prepare an Amenity Management Plan and submit to the CEO within twelve (12) months of the issue of the statement. The Plan shall include, but not be limited to: (1) outcomes of consultation undertaken with the local community and relevant stakeholders regarding: (a) the specifications and locations of amenity infrastructure such as screen-walls, noise-walls, vegetative screening, landscaping, revegetation, pedestrian overpasses/underpasses, walking trails, foot/cycle paths, and any other relevant infrastructure; (2) a map of the amenity infrastructure to be constructed/installed; (3) the roles and responsibilities for on-going maintenance of the amenity infrastructure; and (4) information to demonstrate how the objective in condition 8-1 and outcome in condition 8-2 will be achieved by the Amenity Management Plan.	Prepare AM Plan	AM Plan Annual CAR	Overall	By 31 May 2023	Compliant - Completed	The Bunbury Outer Ring Road (Southern Section) Amenity Management Plan (Main Roads WA Reference: D23#500728) was submitted to the CEO on 30 May 2023. The Bunbury Outer Ring Road (Southern Section) Amenity Management Plan (Rev 2 Oct 2023) was approved on 25 October 2023 (App-0398). Refer to M8-3, Amenity Management Plan.
1191:M8.4	Social Surroundings	After submitting the Amenity Management Plan and receiving approval by notice in writing from the CEO the proponent shall	Implement AM Plan	Annual CAR	Overall	After receiving approval by the	Compliant	The Bunbury Outer Ring Road (Southern Section) Amenity Management Plan (Rev 2

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
	(Amenity Management Plan)	implement the Amenity Management Plan.		Correspondence with CEO		CEO		Oct 2023) was approved on 25 October 2023 (App-0398). Implementation of the plan is on-going.
1191:M8.5	Social Surroundings (Amenity Management Plan)	Following construction, the proponent shall prepare and submit a report to demonstrate that the requirements of the Amenity Management Plan have been implemented and the objective of condition 8-1 and outcome of condition 8-2 has been achieved.	Prepare and submit a report on AM Plan implementation	Report (Condition M8-5) Correspondence with CEO	Operation	Following construction	Compliant	Refer to M8-4, Amenity Management Plan – Approval. Refer to Appendix E: Amenity Management Plan (AMP) Audit Table.
1191:M9.1	Offsets	The proponent shall implement offset measures to counterbalance the significant residual impacts to the following environmental values: (1) 60.9 ha of habitat for western ringtail possum; (2) 60.9 ha of black cockatoo foraging and breeding habitat; (3) 39.2 ha of habitat for south-western brush-tailed phascogale; (4) 23.4 ha of Banksia Woodlands of the Swan Coastal Plain PEC (Banksia Woodlands); (5) 4.4 ha of Tuart (<i>Eucalyptus gomphocephala</i>) woodlands and forests of the Swan Coastal Plain PEC (Tuart Woodlands); and (6) 4.5 ha of Southern Swan Coastal Plain <i>Eucalyptus gomphocephala</i> – <i>Agonis flexuosa</i> Woodlands PEC (Tuart-Peppermint Woodlands), overlapping the Tuart Woodlands PEC.	Implement Conditions M9-2 to M9-14	Annual CAR	Overall	Ongoing	Compliant	Refer to Appendix F: Offset Management Plan (OMP) Audit Table.
1191:M9.2	Offsets	To meet the requirement of condition 9-1 the proponent shall undertake offset measures to the extents and at the locations as set out and described in Table 1.	Implement offset measures in accordance with Table 1 and the BORR Southern Section Offset Management (OM) Plan	Annual CAR	Overall	Ongoing	Compliant	Refer to Appendix F: Offset Management Plan (OMP) Audit Table.
1191:M9.3	Offsets	Within twelve months of the commencement of ground-disturbing activities, the proponent shall revise the existing Bunbury Outer Ring Road (BORR) Southern Section Offset Management Plan to the requirements of the CEO, and to meet the following objectives: (1) counterbalance the significant residual impacts listed in condition 9-1; (2) improve connectivity of western ringtail possum habitats;	Revise OM Plan and submit to CEO	OM Plan Annual CAR	Overall	Within twelve months of the commencement of ground-disturbing activities	Compliant	The Offset Management Plan (Rev A, 10 Jun 2022) was submitted to DWER on 10 Jun 2022. The Offset Management Plan (Rev C, Nov 2022) was submitted to DWER on 23 Dec 2022. The Offset Management Plan (Rev 1, Feb 2024) was submitted to DWER and

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
1191:M9.4	Offsets	(3) ensure a net-gain in western ringtail possum populations in secure conservation tenure within fifteen (15) years from the commencement of construction; and (4) demonstrate a strategic conservation benefit for the western ringtail possum species. The BORR Southern Section Offset Management Plan shall: (1) demonstrate that the objectives in condition 9-3 will be met; (2) describe how the offset measures will be implemented consistent with condition 9-2; (3) be prepared in consultation with DBCA, the Shire of Capel and the Shire of Dardanup; (4) consistent with condition 9-2, spatially identify the areas (Proposed Offset Conservation Areas) of: (a) acquired lands offset areas to receive on-ground management and/or revegetation offset measures; (b) DBCA lands to receive on-ground management and revegetation offset measures. (5) demonstrate how the environmental values within the Proposed Offset Conservation Areas will be maintained and improved in order to counterbalance the significant residual impact to the environmental values in condition 9-1 through application of the principles of the WA Environmental Offsets Policy and completion of the WA Offsets Template, as described in the WA Environmental Offsets Guidelines, and the Environment Protection and Biodiversity Conservation Act 1999 Environmental Offsets Policy Assessment Guide, or any subsequent revisions of these documents; (6) for the land acquisition offsets identified in condition 9-2: (a) demonstrate that the Proposed Offset Conservation Areas contain the minimum extents of the environmental values identified in condition 9-2; (b) identify how the Proposed Offset Conservation Areas will be protected, being either the sites are ceded to the Crown for the purpose of management for conservation, or the sites are managed under other suitable mechanism for the purpose of conservation as agreed by the CEO by notice in writing; (c) specify the quantum of works associated with establishing the Proposed Offset Conservation Areas, including a contribution for maintaining the offset for at least twenty (20) years after completion of purchase or approval of the offset management plan where relevant; and (d) identify the relevant management body for the on-going management of the Proposed Offset Conservation Areas, including its role, and the role of the proponent, and confirmation in writing that the	Prepare OM Plan	OM Plan Annual CAR	Overall	Within twelve months of the commencement of ground-disturbing activities	Compliant	approved on 11 March 2024. Refer to M9-3, Offset Management Plan. The Offset Management Plan (Rev 1 Feb 2024) was approved by DWER on 11 March 2024. Refer to Appendix F: Offset Management Plan (OMP) Audit Table.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		relevant management body accepts responsibility for its role.						
		(7) For revegetation and/or on-ground management offsets identified in condition 9-2:						
		(a) state the completion criteria for revegetation and/or on-ground management for each offset site, which will demonstrate attainment of the 'future quality with offset' score in Schedule 3. For revegetation offsets relating to western ringtail possum environmental values, this shall include, but not be limited to:						
		(i) western ringtail possum target densities;						
		(ii) completion criteria to measure (at a minimum) ringtail possum abundance/distribution, habitat structure and vegetation condition; and						
		(iii) adaptive management to inform successful habitat revegetation for western ringtail possum.						
		(b) demonstrate the consistency of the targets with the objectives of any relevant guidance, including but not limited to, recovery plans or area management plans;						
		(c) detail the on-ground management actions, with associated timeframes for implementation and completion, to achieve the targets identified in condition 9-4(7)(a); and						
		(d) detail the monitoring, reporting and evaluation mechanisms for the targets and actions identified under conditions 9-4(7)(a) and 9-4(7)(c).						
		(8) for the predator control program within the Ludlow Tuart State Forest/Tuart Forest National Park (consistent with the proponent's Offset Strategy Revision 3 August 2021):						
		(a) state the targets to be achieved by the predator control program which will result in a tangible improvement to the environmental values being offset;						
		(b) demonstrate the consistency of the targets with the objectives of any relevant guidance, including but not limited to, recovery plans or area management plans;						
		(c) detail the on-ground management actions, with associated timeframes for implementation and completion to achieve the targets identified in condition 9-4(8)(a), and how the implementation of the predator control program will facilitate the achievement of the objectives in conditions 9-3(3) and 9-3(4); and						

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		(d) detail the monitoring, reporting and evaluation mechanisms for the targets and actions, including but not limited to, a review of the program's effectiveness to demonstrate that the objective of conditions 9-3(3) and 9-3(4) will be met.						
		(9) for the establishment of a Wildlife Carer's Peppermint Orchard:						
		(a) identify the location of the Wildlife Carer's Peppermint Orchard and state the completion criteria for this offset measure in accordance with DBCA requirements; and						
		(b) detail the monitoring, reporting and evaluation mechanisms to demonstrate the completion criteria identified under condition 9-4(9)(a) will be met.						
		The proponent:						
1191:M9.5	Offsets	(1) may review and revise the BORR Southern Section Offset Management Plan; or	OM Plan will be reviewed annually and revised if required or as directed by the CEO	Revised OM Plan	Overall	As required or when directed by the CEO	Compliant	The Offset Management Plan annual internal review was conducted in February 2026, no changes to the plan were required.
		(2) shall review and revise the BORR Southern Section Offset Management Plan as and when directed by the CEO by a notice in writing.		Annual CAR				
1191:M9.6	Offsets	The CEO shall confirm in writing that the BORR Southern Section Offset Management Plan satisfies the requirements of conditions 9-3 and 9-4 ¹ .	Develop and submit OM Plan	Correspondence from CEO	Pre-construction	Within twelve months of the commencement of ground-disturbing activities	Compliant - Completed	The Offset Management Plan (Rev 1 Feb 2024) was submitted to DWER and approved on 11 March 2024 (APP-0000381). Refer to M9-6, Offset Management Plan - Approval.
1191:M9.7	Offsets	The proponent shall implement the latest revision of the BORR Southern Section Offset Management Plan approved by the CEO.	Implement latest version of OM Plan	Annual CAR OM Plan	Overall	Until the CEO has confirmed that the proponent has demonstrated that the objectives in condition 9-3 are being met.	Non-Compliant	Refer to Appendix F: Offset Management Plan (OMP) Audit Table.
1191:M9.8	Offsets	The proponent shall continue to implement the BORR Southern Section Offset Management Plan until the CEO has confirmed by notice in writing that the proponent has demonstrated that the objectives in condition 9-3 are being met.	Implement OM Plan	Annual CAR Correspondence from CEO	Overall	Until the CEO has confirmed that the proponent has demonstrated that the objectives in condition 9-3 are being met	Compliant	Refer to Appendix F: Offset Management Plan (OMP) Audit Table.
1191:M9.9	Offsets	When a notification to the CEO occurs in accordance with condition 12-5, the proponent shall provide a report to the CEO within sixty (60) days if the actions, objectives, or targets in the BORR Southern Section Offset Management Plan are unable to be	Prepare and submit a report to CEO	Report (Condition M9-9)	Overall	Within 60 days if the actions, objectives, or targets in the BORR	Not Applicable	Not required at this stage.

¹ This condition has been amended as part of the s45C signed 22 June 2022.

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		met and provide details and timing of contingency actions to be undertaken, to the satisfaction of the CEO.		Correspondence from CEO		Southern Section Offset Management Plan are unable to be met		
1191:M9.10	Offsets	The proponent shall report to the CEO on the outcomes of the contingency actions as required by condition 9-9 within sixty (60) days of completion.	Prepare and submit a report to CEO	Report (Condition M9-10)	Overall	Within 60 days of completion of the contingency actions	Not Applicable	Not required at this stage.
1191:M9.11	Offsets	The proponent shall continue to implement contingency actions as required by condition 9-9 until the CEO has confirmed by notice in writing that the proponent has demonstrated that the objectives in condition 9-3 are being met.	Implement contingency actions required under Condition M9-9	Correspondence from CEO	Overall	Until the CEO has confirmed that the proponent has demonstrated that the objectives in condition 9-3 are being met	Not Applicable	Not required at this stage.
1191:M9.12	Offsets	If, after receiving the Environmental Performance Report required by condition 6-5 the CEO determines that the proposal has not met the environmental outcome in condition 6-2 and has resulted in an additional significant residual impact to western ringtail possum, and after notifying the proponent in writing, the proponent must undertake an additional offset to counterbalance the significant residual impact from the additional impact to western ringtail possum in habitats adjoining the development envelope.	Implement additional offsets and revise OM Plan	Correspondence with CEO OM Plan Annual CAR	Overall	Upon the request of the CEO	Not Applicable	Not required at this stage.
1191:M9.13	Offsets	Within twelve (12) months of receiving notice in writing from the CEO that an additional offset is required under condition 9-12, the proponent shall update the BORR Southern Section Offset Management Plan required by condition 9-3 to include additional offsets to counterbalance the significant residual impacts to western ringtail possums.	Update OM Plan to include additional offsets requirements and submit to CEO	Updated OM Plan Annual CAR Correspondence from CEO	Overall	Within 12 months of receiving notice from the CEO that an additional offset is required under condition 9-12	Not Applicable	Not required at this stage.
1191:M9.14	Offsets	The proponent shall implement the latest version of the BORR Southern Section Offset Management Plan, which the CEO has confirmed in writing satisfies the requirements of condition 9-4.	Implement latest version of OM Plan	OM Plan Annual CAR Correspondence from CEO	Overall	As required when OM Plan is updated	Compliant	The Offset Management Plan (Rev 1 Feb 2024) was submitted to DWER and approved on 11 March 2024 (APP-0000381). Refer to Appendix F: Offset Management Plan (OMP) Audit Table.
1191:M10.1	Contact Details	The proponent shall notify the CEO of any change of its name, physical address, or postal address for the serving of notices or other correspondence within twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.	Submit written notification to the CEO of changes to contact details	Written notification to CEO	Overall	Within 28 days of a change of name, physical address, or postal address.	Not Applicable	No proponent changes occurred within the current reporting period.
1191:M11.1	Time Limit for Proposal	The proponent shall not commence implementation of the proposal after five (5) years from the date of this Statement, and	Implement the proposal and	Written notification to	Overall	By 31 May 2027	Compliant - Completed	This, and previous CARs, confirms that the proponent has substantially commenced

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
	Implementation	any commencement, prior to this date, must be substantial.	Condition M11-2	CEO				construction.
1191:M11.2	Time Limit for Proposal Implementation	Any commencement of implementation of the proposal, on or before five (5) years from the date of this Statement, must be demonstrated as substantial by providing the CEO with written evidence, on or before the expiration of five (5) years from the date of this Statement.	Submit written notification to the CEO	Written notification to CEO	Overall	By 31 May 2027	Compliant - Completed	This, and previous CARs, confirms that the proponent has substantially commenced construction.
1191:M12.1	Compliance Reporting	The proponent shall prepare and maintain a Compliance Assessment Plan which is submitted to the CEO at least six (6) months prior to the first Compliance Assessment Report required by condition 12-6, or prior to implementation of the proposal, whichever is sooner.	Prepare a Compliance Assessment Plan and submit to the CEO for approval	Compliance Assessment Plan (CAP) CEO approval of CAP	Overall	By 28 February 2023 or prior to implementation	Compliant - Completed	The Compliance Assessment Plan (CAP) was submitted to the CEO on 20 July 2022 and approved on 21 July 2022. A copy of the CAP is available on the Main Roads website. Refer to M12-1, Compliance Assessment Plan.
1191:M12.2	Compliance Reporting	The Compliance Assessment Plan shall indicate: (1) the frequency of compliance reporting; (2) the approach and timing of compliance assessments; (3) the retention of compliance assessments; (4) the method of reporting of potential non-compliances and corrective actions taken; (5) the table of contents of Compliance Assessment Reports; and (6) public availability of Compliance Assessment Reports.	Prepare and submit to the CEO a CAP addressing all requirements	CAP CEO approval of CAP	Overall	By 28 February 2023 or prior to implementation	Compliant - Completed	The Compliance Assessment Plan (CAP) was submitted to the CEO on 20 July 2022 and approved on 21 July 2022. A copy of the CAP is available on the Main Roads website. Refer to the CAP.
1191:M12.3	Compliance Reporting	After receiving notice in writing from the CEO that the Compliance Assessment Plan satisfies the requirements of condition 12-2 the proponent shall assess compliance with conditions in accordance with the Compliance Assessment Plan required by condition 12-1.	Undertake compliance assessments in accordance with the approved CAP	Annual CAR	Overall	Ongoing	Compliant	The CAP was approved by the CEO on 21 July 2022 (WERVT10374). Refer to M12-3, M12-1 Compliance Assessment Plan – Approval.
1191:M12.4	Compliance Reporting	The proponent shall retain reports of all compliance assessments described in the Compliance Assessment Plan required by condition 12-1 and shall make those reports available when requested by the CEO.	Prepare and retain annual compliance assessment reports in accordance with the approved CAP Make CARs available to CEO on request	Annual CAR	Overall	Ongoing	Compliant	This CAR. Annual compliance assessment reports developed in accordance with the CAP are available on the Main Roads website. <u>Construction Project Compliance Reports Main Roads Western Australia</u>
1191:M12.5	Compliance Reporting	The proponent shall advise the CEO of any potential non-compliance within seven (7) days of that non-compliance being known.	Written correspondence to CEO within 7 days of any potential non-compliance	Annual CAR Correspondence to CEO advising of potential non-compliances.	Overall	Within 7 days of that non-compliance being known	Non-compliant	See Section 3.4 of ACR Section for further information regarding non-reporting. Non-compliance based on DWER finding following March 2026 audit.
1191:M12.6	Compliance Reporting	The proponent shall submit to the CEO the first Compliance Assessment Report fifteen (15) months from the date of issue of this Statement addressing the twelve (12) month period from the	Submit Annual CAR	Annual CAR Transmittal	Overall	By 31 August 2023 and annually	Non-compliant	See Section 3.4 of ACR Section for further information regarding non-reporting. Non-compliance based on DWER finding

Audit Code	Subject	Requirement	How	Evidence	Phase	Timeframe	Status	Further Information
		date of issue of this Statement and then annually from the date of submission of the first Compliance Assessment Report, or as otherwise agreed in writing by the CEO. The Compliance Assessment Report shall:		documentation of CAR.		thereafter		following March 2026 audit.
		(1) be endorsed by the proponent's Chief Executive Officer or a person delegated to sign on the Chief Executive Officer's behalf;						
		(2) include a statement as to whether the proponent has complied with the conditions;						
		(3) identify all potential non-compliances and describe corrective and preventative actions taken;						
		(4) be made publicly available in accordance with the approved Compliance Assessment Plan; and						
		(5) indicate any proposed changes to the Compliance Assessment Plan required by condition 12-1.						
1191:M13.1	Public Availability of Data	Subject to condition 13-2, within a reasonable time period approved by the CEO of the issue of this Statement and for the remainder of the life of the proposal, the proponent shall make publicly available, in a manner approved by the CEO, all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (maps), management plans and reports relevant to the assessment of this proposal and implementation of this Statement.	Publish on Main Roads Western Australia website or provide reports as directed by the CEO	Transmittal documentation of request for data Website link	Overall	Ongoing	Compliant	This CAR will be published on the Main Roads Western Australia website within 14 days of the report being submitted to the CEO. Other approved management plans and/or reports are available on the Main Roads website. <u>Construction Project Compliance Reports</u> <u>Main Roads Western Australia</u>
		If any data referred to in condition 13-1 contains particulars of:						To date no data has been excluded from the Proposals documentation.
		(1) a secret formula or process; or						
1191:M13.2	Public Availability of Data	(2) confidential commercially sensitive information; the proponent may submit a request for approval from the CEO to not make these data publicly available. In making such a request the proponent shall provide the CEO with an explanation and reasons why the data should not be made publicly available.	Provide the CEO with an explanation and reasons why data should not be made publicly available	Correspondence with CEO, request for confidentially, if applicable	Overall	Ongoing	Not Applicable	

APPENDIX C: Table 6. Summary of Compliance with Construct Fauna Management Plan Commitments (CFMP)

APPENDIX C: Table 6. Summary of Compliance - Construction Fauna Action Management Plan Commitments (CFMP)

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
WRP and BTP Management Actions and Performance Targets	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	Prior to clearing, the final road design shall be assessed against the proposed clearing area to ensure the required clearing area is no more than the approved area.	Avoid direct impacts to WRP and BTP individuals	Not Applicable	The road design is within the specified clearing limits for the Proposal. Refer this CAR, Table 2.
	South-western brush tailed Phascogale (BTP, <i>Phascogale tapoatafa</i>)	At least six (6) weeks prior to clearing, install artificial dreys, artificial watering points and protective natural structures (such as felled trees) in revegetation sites outside the development envelope, exclusion areas and other areas where appropriate (refer to Section 1.4.1.1.3).	Minimise indirect impacts on adjacent revegetation habitat	Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
Prior to clearing / construction		At least six (6) weeks prior to clearing, install arboreal ropes where practical to provide connections from habitat inside the development envelope to revegetation sites outside the development envelope to minimise the need for WRP to go to ground (refer to Section 1.4.1.1.3.).	Preclude use of refuge sites within the development envelope prior to construction	Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		Within thirty (30) days prior to clearing (or if staged, prior to each clearing stage) survey for WRP and BTP shall be undertaken to confirm presence / absence and number individuals within the development envelope and at revegetation sites (refer to Section 2.3.2).	Reduce predator population within the development envelope and adjacent habitat	Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
Section 2.1 Table 2-1 pg. 28		Deploy soft-jaw traps within the Development Envelope during the 30-day period prior to the clearing based on field observations (refer to Section 1.4.1.1.2).		Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		Vacant dreys suitable for WRP or BTP shall be removed, and hollows blocked prior to clearing were deemed appropriate and safe.		Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		Prior to clearing, control of WONS, declared plants and aggressive environmental weeds recognised as threats to WRP habitat will be undertaken within the Development Envelope.		Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		All WRP and BTP habitat that is to be retained within the Development Envelope shall be delineated prior to site works to ensure it is conserved.		Compliant	No clearing activities were undertaken during the reporting period (2025-2026).
					All WRP and BTP habitat that is to be retained is pegged and flagged accordingly to ensure it is conserved.
					SWGAs has a detailed ground disturbance and clearing protocol outlined in the <i>SWGAs Construction Environmental Management Plan</i> and reflected in the and <i>SWGAs Ground Disturbance and Clearing Permit</i> .
					Refer to M0 SWGA Construction Environmental Management Plan.
				Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		Clearing of vegetation shall be confined to daylight hours.			
		Movement / disturbance of recently cleared vegetation (within 24 hours and prior to downsize / chipping) shall be confined to daylight hours.			
		Cleared vegetation shall be chipped immediately (i.e., not stockpiled) or transported at least 100 m from WRP and BTP habitat before further processing.			
				Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
During clearing Section 2.1 Table 2.1 pg. 29	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	All buildings requiring demolition for the Proposal shall be inspected for WRP and BTP twice a day for two days prior to demolition works. Where WRP or BTP are observed, or suspected, to be in any building to be demolished attempts shall be made to capture the animal prior to the demolition works commencing. A licensed fauna-spotter shall be on-site at all times during the demolition of buildings suspected or observed to house WRP or BTP. Machinery operators shall maintain radio communication with their spotter. Any pest animal baits used in buildings to be demolished shall be in bait stations and disposed of prior to demolition. Sensitive Clearing Protocols Patches of WRP habitat to be cleared will be delineated prior to clearing.	Avoid direct impacts to WRP and BTP	Not Applicable	No demolition activities were undertaken during this reporting period.
	South-western brush tailed Phascogale (BTP, <i>Phasogale tapoatafa</i>)	Clearing timeframes for Category 1, 2 and 3 Habitat Clearing Categories (Table 1-5) shall be followed. Spotlighting of potential WRP and BTP habitat shall be undertaken by a suitably experienced person for two nights within the seven (7) days prior to clearing. Trees containing WRP will be tagged and checked during pre-clearing fauna searches. Pre-clearing fauna searches shall be conducted immediately prior to (i.e., on the day of) and during clearing operations and will include hollows, dreys, ground debris, dense ground-level vegetation, fallen timber and logs. Clearing shall be conducted congruent with the habitat clearing categories as detailed in Table 1-5 and shown in Figure 2. Habitat clearing is to be staged, commencing from existing cleared edges / roads, and progressing towards habitat that will be retained to direct WRP and BTP towards these areas as per the proposed clearing staging (Figure 2). Where western ringtail possums (WRP) are observed during clearing operations, the tree containing the animal shall be left for up to two consecutive nights to allow for the animal to vacate or move into an artificial drey (installed within or near trees known to contain possums prior to clearing), while clearing continues in adjacent vegetation. If the tree continues to be occupied after two consecutive nights, the animal will be safely coerced / relocated to a safe area outside of the clearing footprint by the authorised fauna spotter(s). Where possums have been identified as likely to occur (i.e., observed hollow), trees shall be 'bumped gently' with a machine prior to felling. The machinery operator and fauna spotter(s) will wait and observe the tree for a period of time to allow fauna to move off on its own accord into the surrounding vegetation. If the animal remains in the tree, the tree shall be felled slowly and controlled onto vegetation, as directed by the fauna spotter(s). The 'soft felling' of habitat trees will provide a 'cushion' for the vegetation being felled, minimising the risk of injury to the animal and allow any WRP the opportunity to safely vacate. Artificial dreys may be installed within or near trees known to contain WRP prior to clearing, as WRP appear to preferentially move into artificial dreys.	Minimise indirect impacts on adjacent receive habitat Avoid indirect impacts to WRP in adjacent habitat Restore and maintain connectivity between known WRP and BTP habitat areas Reduce predator population within the Development Envelope and adjacent habitat	Not Applicable Not Applicable Not Applicable Not Applicable Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026). No clearing activities were undertaken during the reporting period (2025-2026). No clearing activities were undertaken during the reporting period (2025-2026). Therefore, there has been no requirement to undertake spotlighting during the reporting period. No clearing activities were undertaken during the reporting period (2025-2026). No clearing activities were undertaken during the reporting period (2025-2026). No clearing activities were undertaken during the reporting period (2025-2026)
				Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026)
				Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026)
				Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026)
				Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026)
				Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026)

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
		Entrances of inhabited dreys will be safely blocked, and both the drey and WRP will be securely relocated into nearby revegetation habitat, as has been successfully implemented in other local clearing projects (Dr. Mike Bamford, pers. comm.). Alternatively, where practical, the hollow may be cut from the tree with the WRP in situ, and relocated to nearby revegetation habitat, as has been successfully implemented in other local clearing projects (Dr. Mike Bamford, pers. comm.).			
		In situations where connections to adjacent revegetation habitat have been reduced by ongoing clearing or potentially cause stress or take of the animal, a licensed fauna spotter may coerce / move the animal to a safe area outside of the clearing footprint. Where practical, WRP will be encouraged to move along the branches of one tree to the next, into revegetation habitat. Experience shows that WRP will also step onto a net and allow themselves to be carried on the net to trees in revegetation habitat (Dr. Mike Bamford, pers. comm.).			
		Felled trees with hollows shall be checked immediately for fauna after felling (by fauna spotter) and prior to further processing. If it is not possible to fully inspect the hollow, the tree will be left on the ground overnight to allow time for any undetected fauna to vacate.			
		Vacant dreys within felled trees will be destroyed immediately to prevent animals re-entering them.		Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		A post-clearing survey shall be undertaken (by fauna spotter) immediately following each day's clearing operations and the following morning to identify the presence of any injured animals.		Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		Terrestrial Fauna Handling Fauna handling shall only be conducted by licensed fauna spotters.		Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		Any WRP and BTP showing signs of injury or illness shall be caught, bagged, and taken to an experienced wildlife veterinarian.		Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		If an injured WRP or BTP has not already been captured, then the appointed fauna-spotter must attempt to capture the animal for the purposes of veterinary assessment and treatment.		Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		All treatment of injured fauna shall be undertaken by a veterinarian.		Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
		Where clearing operations about existing roads, in addition to standard traffic management measures, visual message boards shall be installed to warn drivers of the potential for fauna to cross the road during clearing operations.		Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).
During construction	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	Road construction activities (i.e., activities undertaken after clearing has been completed) adjacent to WRP habitat will only be undertaken during daylight hours where practicable.	Avoid direct impacts to WRP and BTP	Compliant	Normal construction hours are 7am – 5pm, Monday to Friday (excluding Public Holidays). Out of hours work is restricted and

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Section 2.1 Table 2.1 pg. 31	South-western brush tailed Phascogale (BTP, <i>Phascogale tapoatafa</i>)	Post-clearing, possum exclusion fencing (temporary and permanent) shall be installed adjacent to known habitat areas to exclude WRP and BTP moving onto the road (Figure 6). The fencing will be 1.5 m high and be constructed to prevent possums being able to climb over or dig under it. Possum exclusion fencing shall take account of and complement noise and screen walls in excluding fauna from moving onto the road. Deploy soft-jaw traps bi-monthly within the Development Envelope during construction based on the outcomes of site assessments. Loss of ecological connectivity Construct two fauna bridges at Yalinda Drive and 350 meters to the east, at least 5 meters in width. Install permanent possum rope bridges / underpasses at key location(s) to enable fauna including WRP to move between retained habitat areas, see Figure 6. Install tree-canopy connections to all crossing structures. The size and design of all movement devices will be based on MRWA Design of Fauna Underpasses (MRWA, 2010), topography at the site, expert advice (Barbara Jones, pers. comm.), information from relevant studies and reports (QDMR, 2000; Harper, M., McCarthy, M. & van der Ree, R., 2008) and in line with the concept designs. Underpass dimensions will be based on the fauna recorded or expected to occur in the vicinity. The final underpass designs will incorporate the following features known to encourage use by fauna and reduce the risk of predation: • Connection to nearby habitat via overhead rope hawsers and poles (minimum 2.5 m high) (Plate 1); • Objects for fauna to shelter on, under or in (furniture) will be locally sourced and will include sand, mulch, logs, and rocks; • Revegetation using fast growing species at underpass entrances to provide cover for animals approaching, entering, and leaving the underpasses; • Natural flooring such as sand or gravel; • Possum fencing to direct fauna towards the underpass entrance; and • Dual-use underpasses will have a concrete substrate and will not contain furniture (furniture would be washed away by drainage flows). The Proposal Area boundary will be fenced according to the detailed design to restrict pedestrian and vehicular access to retained WRP habitat. Deploy soft-jaw traps bi-annually at fauna crossing structure access and egress points (once in each of the spring and autumn seasons) for five years post-construction based on the outcomes of site assessments.	Minimise indirect impacts on adjacent receiveal habitat. Avoid indirect impacts to WRP in adjacent habitat Restore and maintain connectivity between known WRP and BTP habitat areas Reduce predator population within the Development Envelope and adjacent habitat	Compliant Compliant Compliant	regulated. Out of hours works were completed within this reporting period. The Proposal design reports and drawings include the requirements for installation of fauna fencing in accordance with CFMP. During the 2025–2026 reporting period, Main Roads continued constructing fauna exclusion fencing adjacent to identified habitat areas. While the remaining fencing sections are anticipated to be largely complete within the 2026–2027 reporting period, further fencing is expected as future road infrastructure works occur. Experienced specialist consultants have been engaged to undertake predator control within and adjoining the Development Envelope during construction. In progress. Construction of the fauna bridges (crossing structures and land bridges) commenced during the 2023–2024 reporting period and were completed during this 2025–2026 reporting period. Connections to the land and rope bridges have been established except for one rope bridge where suitable habitat hasn't established yet. The connection of the rope bridge to the adjacent habitat will occur once the habitat is mature enough for possums to safely move through the landscape. The fauna connectivity structures are as per the Proposal design reports and drawings.
Post construction Section 2.1 Table 2.1			Minimise predation at crossing structures	Compliant	Experienced specialist consultants have been engaged to undertake predator control within and adjoining the Development Envelope. This includes monitoring of structure and egress points. Refer to M6.8 Predator Control Program Progressive Reports

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
pg. 31					
SMART Performance Standards for WRP and BTP	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	No WRP injuries or mortalities as a consequence of construction activity. No WRP or BTP injuries or mortalities as a consequence of construction activity.	Avoid direct impacts to WRP and BTP individuals Preclude use of refuge sites within the Development Envelope prior to construction	Compliant	No Project attributable injuries or mortalities to WRP and BTP individuals occurred during this reporting period.
During construction	South-western brush tailed Phascogale (<i>Phasogale tapoatafa</i>)				
Section 2.1.2. Table 2-2 pg. 34		Not more than 60.9 ha of WRP and 39.2 ha of BTP habitat cleared.	Minimise indirect impacts on adjacent revegetation Reduce clearing of WRP and BTP habitat to the extent practicable in final design	Compliant	No clearing activities were undertaken during the reporting period (2025-2026). Refer to Table 2 of this CAR.
Post construction	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	WRP abundance trends at monitored revegetation sites commensurate with (i.e., not greater than 5 % different to) those at reference sites. Quality / condition of WRP and BTP monitored revegetation sites adjacent to the Development Envelope is maintained at baseline or any change is commensurate with (i.e., not greater than 5% different to) that at reference site habitat.	Minimise indirect impacts on WRP in adjacent revegetation habitat from bi-monthly monitoring at revegetation sites and comparative reference sites	Compliant	Refer to this CAR. Refer to Appendix L: M5.3 Environmental Performance Report – CFMP.
Pg. 35	South-western brush tailed Phascogale (BTP, <i>Phasogale tapoatafa</i>)				
		Installation of engineered movement structures as per specification.	Restore and maintain connectivity between known WRP and BTP habitat areas	Compliant	In progress. Construction of the fauna bridges (crossing structures and land bridges) commenced during the 2023-2024 reporting period and were completed during this 2025-2026 reporting period. Connections to the land and rope bridges have been established except for one rope bridge where suitable habitat hasn't established yet. The connection of the rope bridge to the adjacent habitat will occur once the habitat is mature enough for possums to safely move through the landscape.
		Monitor and implement predator management at crossings to ensure observation do not increase by 25%.	Minimise predation at crossing structures	Compliant	Experienced specialist consultants have been engaged to undertake predator control within and adjoining the Development Envelope. This includes monitoring of structure and egress points. Refer to M6.8 Predator Control Program Progressive Reports
WRP Monitoring Program	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	Injury or death of WRP recorded by Fauna spotters (with lawful authority) and reported to Manager Environment within 24 hours of incident occurring. Main Roads to consult with DBCA of the WRP injury or mortality occurring. Relocation of WRP recorded by Fauna spotters (with lawful authority) and reported to DBCA / DWER within thirty (30) days after clearing (for each clearing stage).	Avoid direct impacts to WRP individuals Report annually as part of Environmental Performance Report	Compliant	No Project attributable injuries or mortalities to WRP and BTP individuals occurred during this reporting period.
Section 2.3.7. Table 2-3 Pg. 46				Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026).

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Site Induction Training Program Section 2.4.3, Table 2-5 pg. 53	South-western brush tailed Phascogale (BTP, <i>Phascogale tapoatafa</i>)	Area of WRP habitat cleared reported to Manager Environment monthly.	Reduce clearing of WRP habitat to the extent practicable in final design Minimise indirect impacts on adjacent revegetation habitat	Not Applicable	No clearing activities were undertaken during the reporting period (2025-2026). Refer to this CAR Table 2
		Report annually as part of Environmental Performance Report against performance measures and contribution of measures to achievement of the environmental objectives. The EPR or response summary will include: Bi-monthly surveys - WRP presence / absence, abundance, and distribution (within DE and at revegetation habitat and reference sites) monitored by a continuation and expansion of the bi-monthly strip sampling surveys that have been conducted within the Development Envelope, revegetation sites and reference sites since October 2019.	Restore and maintain connectivity between known WRP habitat areas Minimise indirect impacts on WRP in adjacent revegetation habitat	Compliant	Refer to this CAR. Refer to Appendix L: M5.3 Environmental Performance Report – CFMP.
		WRP monitoring - telemetry study (including GPS collars), and mark-resight study. Habitat monitoring – WRP habitat (within the Development Envelope and at revegetation sites) monitored via assessment of 3D aerial imagery. - Awareness of Main Roads Environmental Policy. - Identification of the environmental values in the Development Envelope. - Identification of key environmental risks associated with the Proposal, and the identification of management requirements to control such risks. - Roles and responsibilities of all personnel in the protection and management of the environment, including identification of key personnel that have specific roles or responsibilities. - Awareness of importance of compliance with the environmental requirements (including penalties for non-conformance with the environmental requirements). - Pegging of the area of works, and other pegging types (for example, trees to be retained). - Clearing of native vegetation and management of topsoil. - Hygiene procedures for <i>Phytophthora Dieback</i> and weed management. - Appropriate disposal of wastes. - Environmental incidents, including the requirements for management and reporting.	Maintain condition rating in adjacent WRP revegetation habitat Site induction training program to be completed by all personnel that work on the Project	Compliant	All personnel that work on the Project are required to complete a compulsory online and a face to face induction. The inductions address the details outlined in the CEMP and CFMP. Refer to M0 SWGA Construction Environmental Management Plan.
Emergency Contacts Section 2.4.4 pg. 54		Emergency contact details will be signposted at appropriate locations within the Development Envelope, to enable immediate contact and response in the event of an emergency / environmental incident observed by Main Roads personnel, contractors or the public.	Emergency contact details will be signposted within the Development Envelope	Not Applicable	Permanent emergency contact details and stopping bays have been installed as part of the Proposal.
Environmental Audit Schedule Pre construction		Review of construction procedures to ensure CFMP management / monitoring actions are incorporated within works procedures.	Prior to construction (single event)	Compliant - Completed	A pre-commencement audit was completed in July 2022 (Preston Consulting), prior to the commencement of construction works associated with the Proposal.

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Section 3.1. Table 3-1 pg. 55					
Environmental Audit Schedule Construction Section 3.1. Table 3-1 pg. 55		Inspections by site environmental personnel to identify compliance with CFMP. Independent 'third-party' audit for assessment of compliance with CFMP.	Daily Periodic Once during construction	Not Applicable	Stage 1 of construction was completed in June 2025.
Environmental Audit Schedule Post construction Section 3.1. Table 3-1 pg. 55		Independent audit for assessment of compliance with CFMP.	Once during 3 year post construction period	Not applicable	Not required at this stage.
CFMP Review Schedule Construction Section 3.2 Table 3-2 pg. 55		CFMP will be reviewed and updated, as necessary with adaptive management measures following completion of year 1 clearing.	Prior to recommending of Category 1 Habitat in 2023	Completed	The CFMP is subject to ongoing review (with the most recent undertaken in February 2026). No updates have been required to date.
CFMP Review Schedule Construction and Post Construction Section 3.3 Table 3-2 pg. 55		Review CFMP management and monitoring actions. Review of opportunities for an improvement in environmental performance. Revise CFMP (if appropriate) and seek DWER approval of revised CFMP.	Annually (once during construction) Once every three years post construction for nine (9) years	Compliant	The CFMP is subject to ongoing review (with the most recent undertaken in February 2026). No updates have been required to date.
Data Management Section 3.3 Pg. 56		Main Roads will maintain records on the implementation of this CFMP in accordance with Main Roads corporate standard document control procedures. A copy of all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)) management plans, including this plan, and reports will be made publicly available via the Main Roads website.	The retention of records held by Main Roads will be maintained and managed in accordance with the WA State Records Act	Compliant	All documentation and records related to this Proposal are maintained in Main Roads document management system. All relevant documentation that is required to be published on the Main Roads webpage. Construction Project Compliance Reports Main Roads Western Australia

Appendix D: Table 7. Summary of Compliance with Habitat Fragmentation Management Plan Commitments (HFMP)

APPENDIX D: Table 7. Summary of Compliance – Habitat Fragmentation Management Plan Commitments (CFMP)

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
WRP Management Actions and Performance Targets	Western Ringtail Possum (WRP, Pseudocheirus occidentalis)	Minimise the impacts of habitat fragmentation that are attributable to the proposal on western ringtail possum (WRP). Undertake pre-construction baseline 3D aerial surveys of habitat condition in Development Envelope, receipt sites and reference sites to assess if pre-construction condition rating in adjacent WRP receipt habitat is maintained post construction.	Maintain pre-construction condition rating in adjacent WRP receipt habitat (Section 2.6) through pre and post construction condition monitoring	Compliant	Baseline aerial surveys of habitat condition within and adjacent to the Proposal area were completed in July 2022. Further aerial surveys have been undertaken in February 2023, September 2023, March 2024, September 2024, April 2025, and March 2026. Refer to Appendix L: M5.3 Environmental Performance Report - CFMP.
Prior to construction					
Section 2.1 Table 2-1					
pg. 24					
During construction					
Section 2.1 Table 2-1		Construct two fauna bridges at Yalinda Drive and 350 meters to the east, both at least 5 meters in width.	No significant reduction in adjacent receipt habitat condition (CFMP and Section 2.6) due to indirect impacts associated with the Proposal detected through pre and post construction condition monitoring	Compliant – Completed	Fauna bridges are incorporated in the Proposals design and construction. The fauna bridge construction commenced during the 2023-2024 reporting period and was completed during this reporting period.
pg. 24		Install permanent possum rope bridges / underpasses at key location(s) (section 2.3) to enable WRP to move between retained habitat areas (Figure 3).		Compliant	In progress.
		Install tree-canopy connections to all crossing structures. The size and design of all movement devices will be based on MRWA Design of Fauna Underpasses (MRWA, 2010), topography at the site, expert advice (Barbara Jones, pers. comm.), information from relevant studies and reports (QDMR, 2000; Harper, M., McCarthy, M. & van der Ree, R., 2008) and in line with the concept designs (Figure 5).	Restore connectivity between known WRP habitat areas (Section 2.3), through installing crossing structures and subsequent utilisation monitoring		Construction of the fauna bridges (crossing structures and land bridges) commenced during the 2023-2024 reporting period and were completed during this 2025-2026 reporting period. Connections to the land and rope bridges have been established except for one rope bridge where suitable habitat hasn't established yet. The connection of the rope bridge to the adjacent habitat will occur once the habitat is mature enough for possums to safely move through the landscape.
		Underpass dimensions will be based on the WRP fauna recorded or expected to occur in the vicinity (Figure 5 HFMP).			
		The final underpass designs will incorporate the following features known to encourage use by WRP and reduce the risk of WRP predation:	Ensure revegetation is planted to the design criteria specified in Section 2.3.2.1 and 2.3.2.2	Compliant	The features discussed in the Habitat Fragmentation Management Plan in relation to reducing the risk of predation have been incorporated in the Proposal's design, and construction of fauna underpasses.
		- Connection to nearby habitat via overhead rope hawsers and poles (minimum 2.5 m high) - Objects for WRP to shelter on, under or in (furniture) will be locally sourced and will include sand, mulch, logs, and rocks - Revegetation using fast growing species at underpass access and egress points to provide cover for WRP approaching, entering, and leaving the underpasses - Natural flooring such as sand or gravel - Possum fencing to direct fauna towards the underpass entrance - Dual-use underpasses will have a concrete substrate and will not contain furniture (furniture would be washed away by drainage flows).			

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Post construction Section 2.1 Table 2-1 pg. 24	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	- Install possum fence adjacent to known habitat areas to limit WRP access to the Development Envelope, see Figure 3 (HFMP). - The possum fence will be 1.5 m high and constructed to prevent WRP being able to climb over or dig under it, see Figure 4 (HFMP).	Reduce predator population within the Development Envelope and adjacent habitat compared to baseline survey results	Compliant	The Proposal design reports, and drawings include the requirements for the installation of fauna fencing (to 1.5m high) in accordance with the HFMP. During the 2025–2026 reporting period, Main Roads continued constructing fauna exclusion fencing adjacent to identified habitat areas. While the remaining fencing sections are anticipated to be largely complete within the 2026–2027 reporting period, further fencing is expected as future road infrastructure works occur. Revegetation associated with fauna crossing structures commenced in winter 2025 during this reporting period and further revegetation works will occurring in 2026.
		Revegetation Undertake targeted revegetation: - At fauna crossing structure access and egress points (adjacent to the Development Envelope) to make utilisation of the structures attractive and effective for WRP - On fauna land bridge decks - In degraded portions of vegetation retention areas and clearing exclusion areas.			
		Deploy soft-jaw traps, or other appropriate approach or technique, within the Development Envelope during construction (refer to Section 2.4.2).			
		Install design features at WRP crossing structure locations (adjacent to the Development Envelope) to ensure access to water is maintained and to encourage utilisation of the structures.			
		Ongoing 3D aerial surveys of habitat condition in Development Envelope, receiver sites and reference sites.			
		Supplement revegetation at fauna crossing structure access and egress points (adjacent to the Development Envelope) where required to achieve completion criteria (Table 2-7).	Maintain connectivity between known WRP habitat areas (Section 2.3) through installing crossing structures and demonstrating WRP usage through structure utilisation monitoring	Compliant	Specialist consultants have been engaged to undertake predator control within and adjoining the Proposal area. Soft-jaw traps are the primary approach to predator (fox) control. Implementation of the feral and invasive animal management occurs prior to, during, post-clearing, and post construction. Refer to M6-8 Predator Control Progressive Reports. Stage 1 of construction was completed in June 2025, with all major construction activities completed, with ancillary works still being undertaken. Design features such as protective huts and multiple rope connections to adjacent habitat have been installed at fauna crossing structures to ensure that access to water is maintained. Aerial surveys of habitat condition within and adjacent to the Proposal area were completed in July 2022 (prior to construction), February 2023, September 2023, March 2024, September 2024; April 2025, March 2026; and are ongoing. Refer to Appendix L: M5.3 Environmental Performance Report - CFMP.
		Deploy soft-jaw traps, or other appropriate approach or technique, bi-annually at fauna crossing structure access and egress points (once in each of the spring and autumn seasons) for the period of EPBC Act/EP Act approvals or as otherwise agreed by the Minister/CEO (refer to Section 2.4.2).			

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
SMART Performance Standards for WRP Management Objectives Section 2.1.3 Table 2-3 Pg. 30	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	Motion sensor IR cameras will be installed on fauna crossing structures to assist with determining crossing structure efficacy.	Cameras will be deployed for a minimum of four weeks annually for a minimum of fifteen (15) years post construction	Compliant	egress points. Refer to M6-8 Predator Control Progressive Reports. The installation of motion sensor IR cameras was completed in June 2025. Monitoring at the camera points is all year round, exceeding the 4-week requirement.
		Maintain or improve condition rating in adjacent WRP receival habitat No reduction in receival site vegetation condition against pre-construction habitat survey results (Section 2.3.3.2), or any trends in condition change are consistent with changes to reference site habitat condition over the same period.	Maintain or improve condition rating in adjacent WRP receival habitat	Compliant	Refer to Appendix L: M5.3 Environmental Performance Report – CFMP. Refer to Appendix J: M3-4 Environmental Performance Report – Flora and Vegetation.
		Minimise or avoid indirect impacts on WRP in adjacent receival habitat WRP abundance and persistence trends at receival sites returns to pre-disturbance levels within 15 years from commencement of the action.	Minimise or avoid indirect impacts on WRP in adjacent receival habitat	Compliant	Specialist consultants have undertaken bi-monthly WRP surveys within and adjoining the Proposal area since 2019 to identify trends in WRP abundance within and adjoining the Proposal area and at reference sites.
		Restore and maintain connectivity between known WRP habitat areas. Restore and maintain connectivity between known WRP habitat areas.	Structures utilised within 5 years of construction	Compliant	Refer to Appendix L: M5-3 Environmental Performance Report – CFMP. In Progress. Connectivity has been maintained and restored through the installation of fauna bridges, crossings, and underpasses. Installation of the fauna bridges was completed during the 2024-2025 reporting period. Although rope bridges have all been constructed, one rope bridge is yet to be connected to adjacent habitat as the revegetation has not matured enough to provide habitat that will allow possums to safely move through the landscape. This rope bridge will be connected, and fully functional once suitable habitat is established.
		Ensure revegetation meets design criteria As detailed in Table 2-7 for the fauna land bridges and forecourt areas and fauna crossing structure access and egress points and Table 2-10 for vegetation retention and clearing exclusion areas.	Ensure revegetation meets design criteria Ensure revegetation achieves success criteria	Compliant	The structures that have been connected are well utilised by possums and phascogales, with hundreds of images being captured each week of arboreal animals using the structures to move along and across the highway. In progress. Revegetation of the fauna land bridges and forecourt areas, fauna crossing structure access and egress points commenced in the previous reporting period and more planting will occur during the 2026-2027 reporting period. Infill planting will be undertaken where required to ensure revegetation meets success criteria.
		Reduce predator population within the DE and adjacent habitat Predator observations decrease by at least 50 % against baseline survey results.	Predator survey observations throughout the Development Envelope Predator observations at monitored crossings	Compliant	Experienced specialist consultants have been engaged to undertake predator control within and adjoining the Development Envelope. Refer to M6-8 Predator Control Progressive Report.

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
SMART Performance Standards for HFMP Outcomes Section 2.1.3 Table 2-4 pg. 36	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	WRP abundance at monitored reveival sites return to pre-disturbance levels.	Abundance and persistence of the western ringtail possum in the reveival sites returns to pre-disturbance levels within fifteen (15) years from the commencement of construction	Compliant	Longer-term management requirement. Refer to Appendix L: M5-3 Environmental Performance Report – CFMP.
Land-bridge Revegetation Monitoring Section 2.3.2.3. Table 2-7 Pg. 44	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	- Installation of logs and timber (furniture), minimum 2 per ha, to provide cover for ground fauna. - Weed cover within revegetation area less than 20 % by area. - No weed occurrence is to extend more than 50 % of the bridge deck width. - Bare ground cover within revegetation area no more than 10 % by area. - Plant density equivalent to at least 20 stems per 25 m². - Native vegetation cover 80 % by area across all strata. - Evidence of juvenile native plant recruitment. - Native vegetation cover 80 % by area across all strata and - Evidence of juvenile native plant recruitment. - A minimum of 50 % of the range of species planted present.	- Presence of fauna furniture - Weed cover by area based on quadrats - Bare ground cover by area based on quadrats - Plant density - Native vegetation cover by area based on quadrats - Natural recruitment of native species - Presence/absence of pests - Diversity of species present	Compliant	Installation of furniture on the land-bridges was undertaken during the 2024-2025 reporting period. Revegetation of the fauna land bridges commenced in winter 2025 and was completed during this reporting period. Infill planting will be undertaken where required to ensure revegetation meets success criteria. Revegetation monitoring commenced in July 2025.
WRP Habitat Fragmentation Monitoring Section 2.3.3. Table 2-8 pg. 47	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	Habitat monitoring – WRP habitat (within the Development Envelope and at reveival sites) monitored via assessment of 3D aerial imagery. WRP monitoring: - Telemetry study (including GPS collars), and - Mark-resight study. Genetic relatedness study – genetic analyses of the population and relational dynamics (degree of relatedness) of WRP within the Development Envelope and reveival sites. Bi-monthly surveys - WRP presence / absence, abundance, and distribution (within DE and at reveival habitat and reference sites) monitored by a continuation and expansion of the bi-monthly strip sampling surveys that have been conducted within the Development Envelope, reveival sites and reference sites since October 2019. Conduct visual assessment of constructed / in construction WRP movement structures to confirm these are as per detailed design and provision of as constructed plans. Possum fencing intact and effective. Conduct inspections of fencing for damage and effective function.	Maintain condition rating in adjacent WRP reveival site habitat Minimise indirect impacts on WRP in adjacent reveival habitat Abundance and persistence of the western ringtail possum in the reveival sites returns to pre-disturbance levels within fifteen (15) years from the commencement of construction Restore and maintain connectivity between known WRP habitat areas	Compliant Compliant Compliant Compliant	Refer to Appendix L: M5-3 Environmental Performance Report – CFMP. Refer to Appendix J: M3.4 Environmental Performance Report – Flora and Vegetation. Refer to Appendix L: M5-3 Environmental Performance Report – CFMP. Refer to Appendix L: M5-3 Environmental Performance Report – CFMP. Refer to Appendix L: M5-3 Environmental Performance Report – CFMP.
				Compliant	Construction of the fauna bridges (crossing structures and land bridges) commenced during the 2023-2024 reporting period and were completed during this 2025-2026 reporting period. Connections to the land and rope bridges have been established except for one rope bridge where suitable habitat hasn't established yet. The connection of the rope bridge to the adjacent habitat will occur once the habitat is mature enough for possums to safely move through the landscape.

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
		WRP recorded or filmed using rope bridge or underpass. WRP presence / absence (at structures).			Revegetation associated with fauna crossing structures commenced in winter 2025 during this reporting period and further revegetation works will occurring in 2026. Visual checks of the fauna structures during their construction were undertaken and were ongoing throughout this reporting period. Routine inspections of possum fencing have been regularly undertaken during the reporting period. Fauna monitoring camera installation was completed in June 2025. WRP have been recorded using the rope bridges and underpasses regularly during the reporting period. Revegetation commenced during the previous reporting period as per the design specification and continued during this reporting period. Revegetation will be ongoing.
WRP Predator Control Monitoring Aspects Section 2.4.3 Table 2-9		Predator control efficacy, based on feral predator presence within the Development Envelope and receipt sites. Predator control implementation schedule and field records.	Ensure revegetation meets design criteria Ensure revegetation achieves success criteria Reduce predator population within the DE and adjacent habitat Minimise predation at crossing structures	Compliant	
Reporting Requirements Section 2.7.1 Table 2-11	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	Implementation of HFMP. Non-compliance with HFMP or environmental incident.	Annually (as part of annual compliance reporting) Report - As soon as reasonably practicable but not more than seven business days after becoming aware of the incident or non-compliance (DWER)	Compliant Compliant	Experienced specialist consultants have been engaged to undertake predator control within and adjoining the Development Envelope. Refer to M6-8 Predator Control Progressive Reports. The HFMP has been implemented during the reporting period. Refer to this CAR. No non compliances with the HFMP have been recorded during this reporting period.
HFMP Review Construction and Post construction	Western Ringtail Possum (WRP, <i>Pseudocheirus occidentalis</i>)	Review of HFMP management and monitoring actions. Review of opportunities for an improvement in environmental performance. Revise HFMP (if appropriate) and seek approval of EPA for revised HFMP.	Annually (Once during construction) Once every three years post construction for at least nine (9) years*	Compliant Not applicable	The HFMP is subject to ongoing review with the most recent undertaken in February 2026. No updates have been required to date. Not required at this stage.
Section 3.3 Table 3-2		Post construction Peer review of EPR.	Every five years post construction for 15 years	Not applicable	Not required at this stage. Peer review is not due until 2030.
Data Management Section 3.3		Main Roads will maintain records on the implementation of this CFMP in accordance with Main Roads corporate standard document control procedures.	The retention of records held by Main Roads will be maintained and managed in accordance with the Western	Compliant	All documentation and records related to this Proposal are maintained in Main Roads document management system and managed in accordance with the Western Australian State Records Act 2000.

Management Plan Reference	Species	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
pg. 56		A copy of all validated environmental data (including sampling design, sampling methodologies, empirical data and derived information products (e.g. maps)) management plans, including this plan, and reports will be made publicly available via the Main Roads website.	Australian State Records Act 2000 (WA)		All relevant documentation that is required to be published on the Main Roads webpage Construction Project Compliance Reports Main Roads Western Australia



Appendix E: Table 8. Summary of Compliance with Amenity Management Plan Commitments (AMP)

APPENDIX E: Table 8. Summary of Compliance – Amenity Management Plan Commitments (AMP)

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Table 4 Social Connectivity	Improve pedestrian connectivity within Gelorup	Construct pedestrian underpasses at Five Mile Brook (Figure 2, Appendix A) and Yalinda Bridge. Indicative designs of proposed pedestrian underpasses are shown in Appendix B (Landscape Drawings: SWGA-32-980-00-DRG-0102 and 0103).	Compliance with as constructed drawings	Compliant	The construction of pedestrian underpasses at Five Mile Brook and Yalinda Bridge were completed during the previous reporting period. The pedestrian underpass and Yalinda bridge have been constructed as per Project design drawings.
	Improve connectivity between Gelorup and Stratham	Construct pedestrian crossing across Bussell Highway to Jaymon Road linking Gelorup to Stratham. Indicative design of proposed pedestrian crossing is shown in Appendix B (General Arrangement Drawings: SWGA-32-310-00-DRG-0108).		Not Applicable	Although open to traffic and Stage 1 has been constructed, BORR Stage 1 is not the ultimate project design. The construction of the pedestrian crossing across Bussell Highway to Jaymon Road was removed from the final design for Stage 1 of the project.
	Improve pedestrian and cyclist connectivity through the Proposal Area	The proposed PSPs to be constructed as part of the Proposal will provide a link from Bussell Highway at Gelorup to South Western Highway at Picton via Centenary Road, Bunbury Outer Ring Road and Willinge Drive. Construct the following connectivity features: - Principal Shared Path (PSP) (3.0 m) on the northern side of BORR, from its intersection with the South Western Highway to the Lillydale Road intersection (Appendix B – General Arrangement Drawings: SWGA-31-310-00-DRG-0101 to 0106) - PSP (3.0 m) on southern side of Lillydale Road, from its intersection with BORR connecting to a Shared Path (2.5 m) on the western side of Bussell Highway (Appendix B – General Arrangement Drawings: SWGA-31-310-00-DRG-0106, 0122, 0123, 0124, 0125 and 0141) - Shared Path (2.5 m) on western side of Jules Road North from BORR to Sleaford Drive intersection (Appendix B – General Arrangement Drawings: SWGA-31-310-00-DRG-0124 and 0131) - Walking Trail (2.0 m) connecting Yalinda Drive (north of BORR), under the Five Mile Brook Bridge, to Jilley Road (south of BORR) (Appendix A – Figure 3 and Appendix B – Landscape Drawings: SWGA-32-980-00-DRG-0101 to 102 and SWGA-32-310-00-DRG-1011)		Compliant	Construction of the proposed PSPs was completed during the 2025-2026 reporting period. Construction of the PSP's is as per Proposal design reports and drawings.
	Improve movement on local roads	Shared Path (2.5 m) from the northern to the southern side of BORR from along Yalinda Drive from Cokelup Road across the Yalinda Drive Bridge to Woods Road (Appendix B – Landscape Drawings: SWGA-32-980-00-DRG-0103). • Undertake works on Shire of Capel roads (e.g., Yalinda Drive, Jilley Road, Jules Road and Hasties Road) to provide improved connectivity for local shire roads within Gelorup. • Construct shared paths, cycling and walking paths, drainage, off road carparking on local roads. • Indicative designs of proposed upgraded to local road network are shown in Appendix B (General Arrangement Drawings: SWGA-31-310-00-DRG-0106 to 113, 0121, 0124, 0131).		Compliant	Construction commenced on Shire of Capel Roads (as per Proposal design reports and drawings) was completed during the previous reporting period. The construction of the Shire of Capel roads is as per General Arrangement Drawings (Appendix B)
	Improve social connectivity by reducing the amount of heavy vehicles using	Close Hasties Road to remove thoroughfare for heavy vehicles from Holcim from Jules Road. Indicative designs of proposed upgrades to local		Not Applicable	Although open to traffic and Stage 1 has been constructed, BORR Stage 1 is not the ultimate project design. The ultimate design includes an interchange at the intersection of BORR and Lillydale Road which will include access from the eastern section of Hasties Road.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Table 4 Visual Amenity	local roads within Gelorup	road network are shown in Appendix B (General Arrangement Drawings: SWGA-31-310-00-DRG-0151).			This will facilitate the closure of Hasties Road between Allenville Road and Jules Road.
	Minimise visual amenity impacts on local residents	Construction noise and screening walls as per SWGA project designs and locations shown in Figure 4 (Appendix A), including the following: - Noise walls will be constructed of painted concrete panels and steel posts and meet the requirements of SPP 5.4 (WAPC, 2009). - Where appropriate, generally where the height of walls is proposed to be above 2.5 – 3.8 m, high density acrylic / perspex may be used in the top section of the wall to reduce visual impacts and to assist light transfer to adjacent residences. - Construction additional screen walls to further improve noise and visual amenity along the Gelorup corridor. - Noise walls will be extended along the road verge as screen walls. This will be in areas where gaps existed due to predicted levels being below mitigation trigger levels, except where the road is in a large cutting, between Five Mile Brook bridge and Yalinda Drive bridge, and therefore sunk well below existing ground levels. - Continuation of screen walls between the noise walls will also reduce visual impacts by providing additional screening of road traffic.	- Compliance with As Constructed drawings - Post Construction noise monitoring	Compliant	Construction of the noise and screen walls was completed during the 2024-2025 reporting period. The construction of the noise and screen walls is as per project design reports and drawings. Post construction noise monitoring was undertaken in mid to late 2025.
	Where possible, retain native vegetation	Retain native vegetation wherever possible, in addition to the Retention Vegetation Areas and Vegetated Exclusion Areas included in Figure 4 of MS 1191, for passive recreation and link to walk trails. Proposed areas to be retained, such as around Five Mile Brook, are shown in Figure 2 and Figure 3 (Appendix A).	Compliance with As Constructed drawings	Compliant	No additional clearing was undertaken during the reporting period. All Retention Vegetation Areas and Vegetated Exclusion Areas included in Figure 4 of MS 1191, for passive recreation and link to walk trails reported last year remain the same for the current reporting period.
	Minimise visual impacts of the view of the road and street lighting	Installation and maintenance of vegetation screening and landscape planting to mitigate visual impacts of the view of the road and street lighting. The ULDF (BORR IPT, 2020a) includes a range of measures to mitigate visual and landscape impacts during detailed design such as: - Feature planting and feature planting mixes to interchanges - Screen planting of native shrubs and trees to edges interfacing residential land uses - Median planting, where appropriate, of native shrubs and groundcovers to tie into the character of the wider road journey. - Riparian planting to rivers: drainage / swale planting to basins and swales. The proposed locations of vegetation screening and landscape planting area shown in Appendix B (Landscape Drawings: SWGA-32-980-00-DRG-0000).		Compliant	Revegetation commenced during the previous reporting period and has continued during this reporting period. Infill planting is expected to continue. The revegetation screening and landscape planting is per SWGA landscape drawings.
	Minimise privacy intrusion and reduce headlight glare impacts	Screen walls are included in the Proposal at various locations for the purposes of providing visual privacy to nearby residences and protection from headlight glare. A headlight glare study was undertaken to assess potential glare issues on nearby residences.		Compliant	Construction of the noise and screen walls was completed during the previous reporting period. The construction of the noise and screen walls is as per project design reports and drawings.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Table 4 Significant Trees	No direct or indirect impact to the Giant Tuart ('Grey Giant') or culturally modified tree attributable to the Proposal.	Visual mitigation recommendations were provided to the design team and headlight screen walls incorporated into the Proposal design. - Proposed planting includes native screening vegetation to the Proposal Area boundary between the new road and viewer, therefore over time, this would screen views of the road from areas without screen walls. The proposed locations for noise and screen walls from Jilley Road to Bussell Highway are shown in Figure 4 (Appendix A). <u>Giant Tuart:</u> - Establish a "Construction Exclusion Zone" around the Giant Tuart for the project duration, as per Site Exclusion Area in General Arrangement Drawings: SWGA-32-310-00-DRG-0102 for the Giant Tuart (Appendix B). - Avoidance areas within the Permit area must be demarcated prior to commencement of clearing. This includes flagging, fencing and/or sign posting of sites adjacent to construction areas for avoidance. - Exclusion zones shall be demarcated so that a line of sight can be seen between demarcation pegs. - Ground disturbance (direct or indirect) shall not occur within designated exclusion zones. <u>Culturally modified tree:</u> - The culturally modified tree (noting that this is dead), is located in Boyanup, occurs outside the Proposal Area. This tree has intentionally been avoided during the Proposal design development phase and is not expected to be directly or indirectly impacted by the Proposal. For the purpose of protecting culturally significant information, this location has not been mapped in the AMP. The culturally modified tree is located in private property outside the direct management of Main Roads.	Monthly visual inspections, throughout the construction of the project, of exclusion areas to monitor that there has been no disturbance within these areas	Compliant	Screen planting occurred in late 2024 and is ongoing. Screen planting will continue until revegetation markers are achieved. A "Construction Exclusion Zone" was established around the Giant Tuart during Stage 1 construction. The culturally modified tree remains <i>in situ</i> outside the Proposal Area.
	Environmental audit and monitoring schedule	Periodic inspections by site environmental personnel to identify compliance with the AMP. Audit for assessment of compliance with the AMP.	Periodic (generally monthly)	Compliant	Routine site inspections are completed by Main Roads environmental personnel to identify compliance with various EMPs. Compliance against the AMP is included during these inspections. AMP was approved in October 2023. An audit for assessment of compliance with the AMP is undertaken as part of the compliance report for MS 1191. Compliance with the AMP was assessed and reported on in the 2024/25 Compliance Assessment Report and was published in August 2025.
Table 5 Post Construction		Audit for assessment of compliance with the AMP.	Annually (once per calendar year for up to 3 years)	Compliant	An audit for assessment of compliance with the AMP during post construction is undertaken as part of the compliance assessment report for MS 1191. Compliance with the AMP was assessed and reported on in the 2025/26 Compliance Assessment Report and was published in August 2026.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Table 5 Operation		- At completion of soft landscaping works SWGA shall ensure the following completion criteria are met prior to handover to Main Roads WA: - Non irrigated areas: - A minimum of 50% projected foliage cover (excluding any weeds) over any treated area of 100 m2, with no bare soil areas > 2 m2. - All irrigated planting areas: - A minimum of 70% projected foliage cover (excluding any weeds) over any treated area of 100 m2, with no bare soil areas > 0.5 m2. - All non-irrigated areas of grass: - A minimum 70% grass foliage cover (excluding any weeds) over any treated area of 100 m2, with no bare soil areas > 1 m2. Following completion of construction maintenance period the site will be handed over from SWGA to Main Roads WA and will be subject to on-going operational monitoring through standard network surveillance and maintenance.	- As required during SWGA maintenance period - Ongoing following handover to Main Roads WA	Compliant	Soft landscaping works have continued during the reporting period.

APPENDIX F: Table 9. Summary of Compliance – Offset Management Plan Commitments (OMP)

APPENDIX F: Table 9. Summary of Compliance – Offset Management Plan Commitments (OMP)

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Offset Site #1 Management actions and Time frames	Vehicle access	Install gates and other barriers such as boulders, steel roadside barriers to restrict unauthorised vehicle access.	Installation late 2023 Ongoing twice-yearly inspections Commencing late 2023	Compliant	The installation of gates and other barriers commenced during the 2023-2024 reporting period. Inspections continued during this reporting period.
	Artificial hollows	Install artificial nesting hollows.	Installation winter 2023 Ongoing annual inspections commencing winter 2023	Compliant	Initial installation of artificial nesting hollows has been completed. The annual inspection for this reporting period was completed in December 2025. Refer to Appendix K, M4.7 EPR Black Cockatoo Artificial Hollows.
Lots 153, 267 and 268 Queelup Road Gelorup' offset (Ducane Offset Site)	Weed control	Conduct baseline weed survey.	Commencing spring 2023	Compliant - Completed	The weed baseline survey was undertaken during October 2023.
		Ongoing weed control program (WONS and Declared weeds) with a particular focus around wetland areas.	Twice-yearly in spring and autumn or as required for years 1 and 2 Annually thereafter up to 20 years Commencing 2024	Compliant	Weed control was undertaken in September and October 2025.
Section 3.4.4 Table 3-5	Pest Control	Kangaroo control using shooting.	Twice-yearly in spring and autumn or as required for years 1 and 2 Annually thereafter up to 20 years. Commencing 2024	Compliant	A kangaroo population survey completed in May 2026, and the annual spring and summer flora surveys do not indicate the requirement for active management during this reporting period.
Fire management	Fire management	Fox control using 1080 baiting.	Conduct annually in late winter to autumn based on site observation of fox presence Commencing late winter 2024	Non - Compliant	Surveillance was undertaken by a feral animal management specialist in November 2025. Following consultation with DBCA, baiting is now proposed to commence in spring 2026, pending baiting license approval. Baiting will be ongoing as required.
		Rabbit control using Rabbit Haemorrhagic Disease Virus (RHDV) and Pindone.	Conduct annually in spring to autumn based on site observation of rabbit presence Commencing spring 2024	Compliant	Predator control contractors have been engaged to undertake rabbit control (rabbit baiting). Rabbit baiting was undertaken in July 2024. Monitoring completed in November 2025 identified low density of rabbits, virus release is proposed for Spring 2026.
		Feral cat control using trapping.	Conduct annually in spring to autumn based on site observation of cat presence Commencing autumn 2024	Compliant	Based on annual survey undertaken by predator control contractors during the reporting period feral cat trapping will be targeted when required during this reporting period. No feral cat activity was recorded during the November 2025 survey.
		Maintain 3 m wide firebreak around the offset area boundary.	Ongoing annual inspections and maintenance	Compliant	Three-metre-wide firebreaks around the offset boundaries were established in 2020. Maintenance works for the fire breaks were previously carried out during 2024-2025 reporting period, and again during this reporting period.
Rubbish removal	Rubbish removal	Rubbish will be removed from the site opportunistically to improve vegetation condition and limit the attraction of pest animals.	Rubbish removed from the site opportunistically	Completed	Rubbish has been opportunistically removed from site; this will be ongoing as required.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Offset Site #1 Monitoring Program	Presence and condition of fencing	Visual inspection of fence.	Report annually as part of annual compliance reporting Commencing spring 2023	Compliant	Visual inspections of fencing commenced in Spring 2023 and have been conducted routinely during the reporting period. This will be ongoing.
Ducane Area Lots 153, 267 and 268 Queelup Road Gelorup' offset (Ducane Offset Site)	Condition of firebreaks	Visual inspection of firebreaks.	Report annually as part of annual compliance reporting Commencing spring 2021	Compliant	Visual inspections of firebreaks are routinely completed, and maintenance is included in the Main Roads annual firebreak program. This will be ongoing.
Section 3.4.5 Table 3-6	Fox, feral cat and rabbit control	Field survey for visual evidence of fox, feral cat or rabbit presence.	Conduct annually in autumn Commencing 2024	Compliant	Predator control contractors have been engaged to conduct fox, feral cats and rabbit surveys. Opportunistic observations are completed as part of the routine site inspections. An annual survey was undertaken in November 2025 for the development of the Feral Animal Management Plan.
	WRP Density/observations	Nocturnal field survey (including in Reference Sites).	Every three years in October/ November Commencing in 2023/2024 (baseline)	Compliant	WRP nocturnal baseline field survey was undertaken in December 2023. The next survey required in October/November 2026.
	Black cockatoo habitat	Field survey of black cockatoo foraging and potential nesting habitat and artificial hollows.	Every two years in spring Commencing 2023/2024 (baseline) 2024 for artificial hollows	Compliant	Black cockatoo field surveys were completed in March 2024 and December 2024. The next survey required is for spring 2026. Refer to Appendix K, M4.7 EPR Black Cockatoo Artificial Hollows.
	Condition of vegetation assessed against EPA (2016)	Field survey.	Annually in spring Commencing 2023 (baseline)	Compliant	The baseline flora and vegetation survey was completed in October 2023. The annual spring field survey was completed in October 2025 and summer survey in January 2026.
	WONS and Declared weed species distribution and diversity	Presence and distribution (location) of WONS and Declared weed species present.	Annually in spring for five years, Commencing 2023 then every two years thereafter	Compliant	Field survey for WONS and declared weed species was included in the flora and vegetation monitoring survey undertaken in October 2023. An annual field survey for 2025 was completed in October as part of the spring flora surveys.
	Vegetation cover and structure	Drone footage (3D imagery).	Three-yearly in autumn or spring Commencing 2023 (baseline)	Compliant	Baseline 3D aerial imagery of the offset site was captured as part of the BORR South corridor in 2023 and re-captured in March 2024. Further 3D aerial imagery capture is scheduled for 2027.
Offset Site #2 Management actions and time frames	Fencing	Install boundary fence to rural fence specifications.	Installation 2023 Ongoing quarterly inspections Commencing 2023	Compliant	Boundary fencing has been installed as per the rural fencing specifications. Routine fencing inspections have been conducted during the reporting period. This will be ongoing.
29 Queelup Road Gelorup' offset (Lot 29 Offset Area)	Artificial hollows	Install artificial nesting hollows.	Installation 2024 Ongoing annual inspections Commencing 2024	Not Applicable	Due to the avoidance and mitigation measures undertaken by Main Roads, all potential hollows were avoided apart from three (3). The artificial nesting hollows installed for these three hollows are located at the Ducane offset site.
Section 4.4.4 Table 4-5	Weed control	Conduct baseline weed survey.	Spring 2023	Complaint - Completed	Refer to Appendix K, M4.7 EPR Black Cockatoo Artificial Hollows. Weed baseline survey was completed in November 2023.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Offset Site #2 Monitoring Program Lot 29 Queelup Road Offset Area Table 4-6 Section 4.4.5		Ongoing weed control program (WONS and Declared weeds) with a particular focus in the area of the south eastern boundary.	Twice-yearly in spring and autumn or as required for years 1 and 2 Annually thereafter based on site observations Commencing 2024	Compliant	A weed control program is in progress and is ongoing. Noting, Year 1 (2024-2025), and year 2 (2025 -2026).
	Pest control	Fox control using 1080 baiting.	Annually in late winter to autumn based on site observation of fox presence commencing autumn 2024	Compliant	Predator control contractors have been undertaken routine surveys within this site. No fox baiting was required during the 2025-2026 reporting period.
		Rabbit control using RHDV and Pindone.	Annually in spring to autumn based on site observation of rabbit presence Commencing autumn 2024	Compliant	Predator control contractors have been engaged to undertake rabbit control (surveillance (identifying presence and or absence of rabbits) and rabbit baiting). Rabbit control was undertaken in May 2025. This will be ongoing based on site observations.
	Fire management	Establish and maintain 3 m wide firebreak around the offset area boundary.	Autumn 2023 Commencing autumn 2023, maintenance ongoing	Compliant	Three-metre-wide firebreak have been established around the offset area boundary. Maintenance and monitoring of fire breaks are incorporated into the Main Roads annual firebreak program. This will be ongoing.
	Fencing	Visual inspections of fence.	Annually Commencing spring 2023	Compliant	Visual inspections of fencing have been undertaken during the reporting period. This will be ongoing.
	Firebreaks	Condition of fire breaks.		Compliant	Visual monitoring of firebreaks has been undertaken during the reporting period. They are incorporated into Main Roads annual firebreak program. This will be ongoing.
	Fox and rabbit control	Field survey for visual evidence of fox or rabbit presence.		Compliant	Routine site inspections include feral animal observations. In addition to this, predator control contractors were engaged in November 2025 to complete formalised monitoring and develop a feral animal management plan.
	WRP Distribution / observations	Nocturnal field survey.	Every three years in October / November Commencing in 2023/2024	Compliant	A nocturnal field survey for WRP was conducted in November 2023. The next nocturnal survey is required in October/November 2026.
	WRP density Number of WRP / ha			Compliant	WRP density was included with the nocturnal field survey conducted in November 2023. The next WRP survey is required in October/November 2026
	Black cockatoo habitat/quality	Field survey of black cockatoo foraging and potential nesting habitat and artificial hollows.	Every two years in spring Commencing 2023 (baseline) 2023 for artificial hollows	Compliant	Due to the avoidance and mitigation measures undertaken by Main Roads, all potential hollows were avoided apart from three (3). The artificial installed for these three hollows are located at the Ducane offset site.
	Vegetation Condition of vegetation assessed against EPA (2016)	Vegetation field Survey.	Annually in spring Commencing 2023 (baseline)	Compliant	A vegetation condition survey was undertaken in October 2025. The baseline flora survey was completed in spring 2023. The annual spring flora survey for 2025 was conducted in October.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Offset Site #3 Management actions and timeframes Lot 301 Marchetti Road Gelorup (now Yalinda Drive) 16' offset (Lot 301 Offset Area) Section 5.4.4 Table 5-5	WONS and Declared weed species distribution and diversity Presence and distribution (location) of WONS and Declared weed species present Cover and structure of vegetation	Field survey (meander with opportunistic recording).	Annually in spring Commencing 2023 (baseline)	Compliant	Field survey for WONS and declared weed species was included in the 2023 baseline flora survey. The annual spring flora survey for 2025 was conducted in October.
	Fencing	Drone footage (3D imagery).	Three-yearly in autumn or spring Commencing 2023 (baseline)	Compliant	Baseline 3D aerial imagery was captured as part of the BORR South corridor in 2023. Further 3D aerial imagery capture was captured in March 2026.
	Artificial hollows	Replace existing rural boundary. Install artificial nesting hollows (ANH).	Installation autumn 2022 Ongoing quarterly inspections Commencing autumn 2022 Installation autumn 2024 Ongoing annual inspections Commencing autumn 2024	Compliant Compliant	Fence installation has been completed. Visual inspections of fencing are routinely undertaken. This will be ongoing. Due to the avoidance and mitigation measures undertaken by Main Roads, all potential hollows were avoided apart from three (3). The artificial nesting hollows installed for these three hollows are located at the Ducane offset site. Refer to Appendix K, M4.7 EPR Black Cockatoo Artificial Hollows.
	Signage	Install signage to exclude dog- walking from this offset area.	Installation Q1/Q2 2024: signage to remain in place for 20 years from the date of approval, Q1/Q2 2024	Completed	Signage installation has been completed.
	Weed control	Conduct baseline weed survey. Ongoing weed control program (WONS and Declared weeds) with a particular focus around Five Mile Brook.	Spring 2023 Commencing spring 2023 Twice-yearly in spring and autumn or as required for years 1 and 2. Annually thereafter based on site observations	Completed Compliant	Weed baseline survey was undertaken in November 2023. Weed control was undertaken as required throughout the reporting period. Weed control is ongoing. Note year 1 (2023 – 2024) and year 2 (2024 – 2025).
Fire management	Pest control	Fox control using 1080 baiting.	Annually in late winter to autumn based on site observation of fox presence	Compliant	Ongoing surveillance has been undertaken at this site. An assessment of potential risks prior to undertaking baiting identified there was an unacceptable risk that domestic pets and other non-target species may be impacted. Fox trapping proposed for winter 2026 if foxes are observed.
		Rabbit control using RHDV and Pindone.	Annually in spring to autumn based on site observation of rabbit presence Commencing autumn 2024 Autumn 2023 Commencing autumn 2024	Compliant	Predator control contractors have been engaged to undertake rabbit control, including surveillance (identifying presence and or absence of rabbits. Rabbit density was considered low in November 2025.
		Establish and maintain 3 m wide firebreak around the offset area boundary.		Compliant	Firebreaks have been established around the offset area boundary. Maintenance and annual monitoring of firebreaks is incorporated into the Main Roads annual firebreak program. This is ongoing.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Offset Site #3	Fencing	Visual inspection of fence.	Annually Commencing 2023	Compliant	Visual inspections of fencing have been conducted throughout the reporting period. This is ongoing.
Monitoring Program	Firebreaks	Inspection of the firebreaks.		Compliant	Visual monitoring of firebreaks has been undertaken during the reporting period. They are included in the Main Roads annual firebreak program. This is ongoing.
Lot 301 Marchetti Road (now Yalinda)	Fox and rabbit control	Field survey for visual evidence of fox or rabbit presence.	Annually Commencing 2024	Compliant	Predator control contractors have been engaged to complete field surveys for fox and rabbit presence. Feral animal surveys were completed in November 2025.
Gelorup16' offset (Lot 301 Offset Area)	WRP distribution	Nocturnal field survey.	Every three years in October / November Commencing in 2023/2024	Compliant	Nocturnal field survey (Biota) for WRP was completed from the 30 October to the 1 November 2023.
Table 5-6	WRP density			Compliant	Next survey will be undertaken in October / November 2026.
Section 5.4.5					WRP density and distribution (Biota) review was completed from the 30 October to the 1 November 2023.
	Black cockatoo habitat/quality	Field survey of black cockatoo foraging and potential nesting habitat and artificial hollows.	Every two years in spring Commencing 2023, 2024 for artificial hollows	Compliant	Next survey will be undertaken in October / November 2026.
	Condition of vegetation assessed against EPA (2016)	Field survey.	Annually in spring Commencing 2023 (baseline)	Compliant	Due to the avoidance and mitigation measures undertaken by Main Roads, all potential hollows were avoided apart from three (3). The artificial nesting hollows installed for these three hollows are located at the Ducane offset site.
	Presence and distribution (location) of WONS and Declared weed species present	Field survey (meander with opportunistic recording).	Twice-yearly for two years Commencing 2023 (baseline) Annually thereafter	Compliant	A vegetation condition survey was undertaken in November 2025.
	Vegetation cover and structure	Drone footage (3D imagery).	Every three years in autumn or spring Commencing 2023 (baseline)	Compliant	A baseline field survey was undertaken in November 2023; with further surveys conducted in November 2025.
Offset Site #4	Clearing / stockpiling stumps	Clearing of regrowth bluegums as required, vegetative material to be mulched.	Commencing autumn 2023 or prior	Completed	Baseline 3D aerial imagery was captured as part of the BORR South corridor in 2023. Further 3D aerial imagery was undertaken in March 2026.
Management actions and timeframes	Fencing	- Survey fence location to obtain accurate calculation of Offset Area. - Removal of dilapidated fence. - Installation of new fence (fauna fence specification) (noting that seasonal inundation limits site access, fence can be installed during summer only).	Commencing autumn 2023 or prior	Completed	The clearing of regrowth blue gums has been completed and the vegetation mulched.
Lot 104 (North) Willinge Drive, Davenport	Earthworks / drainage	Installation of constructed wetlands / nutrient basins.	Commencing summer 2022 / 2023 or	Compliant	The installation of fauna fencing has been completed as per the design specifications.
Section 6.4.4					Firebreak and access tracks have been installed.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Table 6-5		- Contouring the revegetation area to reduce areas of standing water. - Installation of maintenance access / fire tracks. - Rip / furrowing of unvegetated areas in preparation for planting.	prior		Earthworks and drainage works are ongoing as required. Rip / furrowing is ongoing.
	Weed control	Baseline weed survey.	Baseline weed survey to be conducted spring 2023	Completed	Preliminary weed control commenced 2015 / 2016. Baseline weed survey was completed in November 2023.
		- Initial herbicide application prior to planting including treatment of woody weeds (Blue gums). - Revegetation areas treated with pre-emergent herbicide where required prior to planting. - Ongoing management of WONS and Declared weeds.	Estimated two treatments in Years 1-3 post rehabilitation Annually thereafter as required based on site observations	Compliant	Preliminary weed control commenced 2015 / 2016. Weed control for revegetation areas, as well as WONS and Declared Weeds has been ongoing throughout the reporting period.
	Pest animal control	Rabbit baiting using a combination of RHDV and Pindone. Fox baiting using 1080 (sodium fluoroacetate).	Commencing autumn 2023 or prior Annually from spring through to late autumn as required based on site observations Commencing autumn 2023 or prior Annually during late winter through to autumn as required based on site observations	Compliant Compliant	Predator control contractors have been engaged to undertake rabbit control, including routine surveillance (identifying presence and or absence of rabbits) and rabbit baiting. RHDV release was undertaken in May 2026. This will be ongoing. A feral animal survey was completed in October 2025 and indicated low fox activity at this site. Fox control will be ongoing as required.
	Remediation / rubbish removal	- Dieldrin assessment – testing is due November 2021, remediate if required. - Disposal of tyres / waste.	Completed	Completed	Dieldrin testing was completed during 2023. Waste disposal has been undertaken.
Offset Site #4 Monitoring Program		Rubbish removal, opportunistically and as required.	Ongoing, opportunistically	Compliant	Opportunistic waste disposal has been undertaken, and is ongoing as required.
	Firebreak maintenance	Maintenance of fire breaks to remove flammable material.	Annually and opportunistically	Compliant	Maintenance of firebreaks is incorporated into the Main Roads annual firebreak program. This is ongoing.
	Rehabilitation	Seed Collection / Propagation - Seed collections to be ordered annually as required. - Seedling propagation / cuttings taken annually as required.	Seed collection and propagation commencing 2023 The remaining tasks will commence within 12 months of the completion of construction	Compliant	Seed collection was undertaken during the reporting period. Revegetation is scheduled for winter 2026.
		Revegetation – Commencing 2022 - Site is to be fully planted (no direct seeding). - Rip / mound, plant out in 2022 and annually thereafter as required.	Revegetation works are expected to continue for five years		
	Presence and condition of fencing	Visual inspection of fence.	Annually commencing spring 2023	Compliant	Visual inspections of fencing have been conducted routinely throughout the reporting period. This will be ongoing.
	Condition of firebreaks	Visual inspection of firebreaks.	Annually commencing spring 2023	Compliant	Visual monitoring of firebreaks has been undertaken during the reporting period. They are included in the Main Roads annual firebreak program. This is ongoing.
	Fox and rabbit control	Field survey for visual evidence of fox or rabbit presence.	Annually in autumn commencing 2023	Compliant	Routine site inspections include observations of fox and rabbit presence. In addition to this, predator control contractors were

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Lot 104 (North) Willinge Drive, Davenport	WRP Observations / number	Nocturnal field survey.	Baseline assessment in 2023/2024 then every three years in October / November commencing 2030 (six years post rehabilitation)	Compliant	engaged to complete a fox, and rabbit survey in October 2025 as part of the development of feral animal management plan.
Section 6.4.5 Table 6-6	Condition of vegetation assessed against EPA (2016)	Field survey (meander).	Baseline assessment 2023 then annually in spring from 2028 onwards (five years post-rehabilitation)	Compliant	Nocturnal field survey and density / distribution (Biota) of WRP was completed in November 2024.
	WONS and Declared weed species distribution and diversity	Field survey (meander with opportunistic recording).	Annually for five years commencing 2023, every two years thereafter	Compliant	Nocturnal field survey will be planned for October / November 2030.
	Cover and structure of native vegetation	Drone footage (3D imagery).	Every three years in autumn or spring commencing 2023 (baseline)	Compliant	A baseline survey was completed in 2023. Vegetation monitoring will continue in spring 2028 (post – rehabilitation).
Offset Site #5	Weed Control Site 2	Post revegetation – ongoing weed control targeting Arum lily, Bridal creeper and other WONS and Declared weeds as required.	Up to two treatments annually in late winter/early spring and summer/autumn in years 1-3 post revegetation and Annually thereafter	Compliant	Field survey for WONS and declared weeds commenced in November 2023. The annual field survey was completed in November 2025 as part of the flora survey.
Management actions & timeframes					Baseline 3D aerial imagery of the offset site was captured in March 2024.
Ludlow State Forest / Tuart Forest National Park' offset (Ludlow Offset Area)	Weed Control Site 4	Post revegetation – ongoing weed control targeting Arum lily, Bridal creeper and other WONS and Declared weeds as required.	Up to two treatments annually in late winter/early spring and summer/autumn in years 1-3 post revegetation and Annually thereafter	Compliant	Weed control for WONS weeds was completed in May 2026.
Section 7.4.4.2 Table 7-6	Weed Control Site 12	Herbicide application targeting Arum lily, Bridal creeper WONS and Declared weeds as required.	Up to two treatments annually in late winter/early spring and summer/autumn in years 1-3 post revegetation Annually thereafter	Compliant	Post revegetation weed control was undertaken in September 2025.
	Pest Control Site 2	Pest animal control.	Rabbit baiting ongoing annually as required based on site observations. Fox baiting not currently required (requirement monitored annually)	Compliant	Prior to revegetation commencing pre-emergent weed control, and WONS and Declared weed control was undertaken in July and August 2025.
	Pest Control Site 4		Cat trapping to commence spring 2025 and continue annually as required based on site observations	Compliant	Predator control contractors have been engaged to undertake rabbit control including surveillance (identifying presence and or absence of rabbits) and rabbit baiting. Rabbit RHDV release was completed in March 2025. Fox and feral cat control was not required.
	Pest Control Site 12		Rabbit baiting to commence spring 2025 and continue annually as required based on site observations Fox baiting to commence in spring 2025 and continue annually or biannually as required based on site observations Cat trapping to commence spring 2025	Compliant	Predator control contractors have been engaged to undertake rabbit control including surveillance (identifying presence and or absence of rabbits) and rabbit baiting. Very low rabbit activity recorded in this site. No control required at present. Fox and feral cat control was not required.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
			and continue annually as required based on site observations		
Fencing Site 2		Ongoing maintenance of existing fence as required.	Fence installed in 2017	Compliant	Fencing maintenance is carried out as required. This will be ongoing.
Fencing Site 4			Fence installed in 2021	Compliant	Fencing maintenance is carried out as required. This will be ongoing.
Fencing Site 12		- Construction of revegetation area fences to fauna fence specification. - Fauna gates to be installed. - Fence locations surveyed to obtain accurate calculation of Offset Area. - Ensure fence position maintains fire and fauna access.	Fence to be installed 2024	Compliant	Preparation for the construction of the fencing commenced in 2024. The installation of fencing at Site 12 was undertaken during this reporting period. Fauna gates have been installed. Fencing works and maintenance will be ongoing.
Rubbish Removal, all sites		Rubbish removal as required.	Q1 2024 and ongoing	Compliant	Rubbish removal has been undertaken. This will be ongoing as required.
Revegetation – seed collection / propagation Sites 2 & 4		- Order seed collections. - Order seedlings. - Seedling propagation.	Sites 2 and 4 – seedlings for infill planting ordered annually as required based on monitoring results to enable achievement of completion criteria.	Compliant	No infill planting was required during this reporting period.
Revegetation – seed collection / propagation Site 12		- Order seed collection. - Order seedling. - Seedling propagation.	Site 12 – Seed and seedlings to be ordered in 2024	Compliant	Objective of this commitment is to ensure revegetation is undertaken following the installation of the fencing. Fencing installation was undertaken during the reporting period. Seedling were ordered during this reporting period, and revegetation is scheduled to commence in winter 2026.
Revegetation - site preparation Site 12		Rip and furrow-line throughout open areas, hand-augur in amongst existing vegetation in preparation for planting.	Site preparation works to commence in 2025	Compliant	Objective of this commitment is to ensure site preparation is undertaken following the installation of the fencing. Rip and Furrowing commenced in May 2026 ahead of the 2026 planting season.
Revegetation – planting and seeding Sites 2 & 4		Infill planting as required.	Infill planting will be undertaken annually as required	Compliant	No infill planting was undertaken during this reporting period.
Revegetation – planting and seeding Site 12		- Direct seedling of areas with low weed burden. - Rip / furrow planting with seedlings. - Targeted planting required for areas of remnant vegetation. - Infill planting as required.	Planting to commence in winter 2025 and be completed in winter 2029 (5-year revegetation program) Post-2029, infill planting will be undertaken annually as required	Compliant	Objective of this commitment is to ensure revegetation is undertaken following the installation of the fencing. Fencing was undertaken during the previous reporting period. Revegetation will commence in winter 2026.
Rehabilitation Completion all sites		Rehabilitation meets completion criteria (excluding WRP density criteria, which will be completed within 15 years of revegetation commencing).	10 years from commencement of rehabilitation	Not Applicable	Not required at this stage.
Offset Site #5		Visual inspection of fence.	Visual inspection of fence Annually	Compliant	Visual inspections of fencing are conducted annually. This will be ongoing.
Management actions & timeframes		Visual inspection of firebreaks.	Annually Commencing spring 2023	Compliant	Visual inspections of the firebreaks are conducted annually, they are included in the Main Roads annual firebreak monitoring program.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Ludlow State Forest / Tuart Forest National Park offset (Ludlow Offset Area) Section 7.4.5 Table 7-7	Fox, feral cat and rabbit control	Field survey for visual evidence of fox, feral cat, or rabbit presence.	Annually in autumn Commencing 2024 (baseline)	Compliant	Field observations for fox, feral cat and rabbit presence are undertaken routinely throughout the reporting period. The development of a feral animal management plan was undertaken in November 2025.
	WRP Distribution	Nocturnal field survey.	Baseline assessment in 2023/2024 then every three years in October/ November commencing 2030 (six years post commencement of rehabilitation)	Compliant	Baseline nocturnal surveys were completed in November 2023 and April 2024.
	WRP Density			Compliant	WRP distribution surveys were undertaken in November and December 2023.
	Black cockatoo • Presence and/or foraging evidence Number of species per 100m2	Field survey.	Annually in spring Commencing 2028	Not Applicable	Not required at this stage.
		Field survey using 10 x 10 m floristic quadrats.	Annually in spring Commencing year 2023 (baseline)	Compliant	Baseline field survey reports for Site 2, Site 4, and site 12 were completed 2023. The annual field surveys were undertaken in October and November 2025.
	Native foliage cover			Compliant	Baseline field survey reports for site 2, Site 4, and site 12 were completed 2023. The annual field surveys were undertaken in October and November 2025.
	Condition of vegetation assessed against EPA (2016)	Field survey.		Compliant	Baseline field survey reports for site 2, Site 4, and site 12 were completed 2023. The annual field surveys were undertaken in October and November 2025.
	(Presence and distribution (location) of WONS and Declared weed species present)	Field survey (meander with opportunistic recording).	Annually in spring for five years Commencing 2023, every two years thereafter	Compliant	Field surveys for sites 2, 4, and site 12 commenced in 2023. Annual spring field surveys were completed in October and November 2025.
	Vegetation cover and structure	Drone footage (3D imagery).	Every three years in autumn or spring commencing 2023 (baseline)	Compliant	Baseline 3D aerial imagery of the offset site was captured in February 2023 (baseline). 3D aerial imagery was also captured in March 2026, during the reporting period.
		Visual inspection of fence.	Annually Commencing 2022	Compliant	Visual inspections of fencing have been conducted annually. This will be ongoing.
Offset Site #6 Monitoring program Ludlow Peppermint Orchard Section 8.4.5 Table 8-5	Condition of Firebreaks	Visual inspection of firebreaks.	Annually Commencing 2022	Compliant	Visual inspections of the firebreaks are conducted annually; they are included in Main Roads annual firebreak program.
	Orchard development, plant height	Field survey identifying plant height in Peppermint orchard is greater than 2m at five years.	Annually Commencing spring, 2021	Compliant	Field survey completed during the reporting period identified a majority of the plants are over 2m in height, ahead of the 5 years.
	Orchard development, plant health and flowering	Field survey.	Annually Commencing spring 2024	Compliant	Evidence of flowering was recorded during field survey.
	Orchard development, orchard area, size of Peppermint orchard	Size of Peppermint orchard – Orchard area is less than one hectare in any monitoring period.	Annually Commencing spring, 2021	Compliant	Peppermint Orchard size is greater than 1 hectare.
	Fox bait uptake	Visual inspection, camera detection rates, monitor number of baits take.	Monthly commencing winter 2023 (baseline) for years 1-5	Compliant	DBCA manages the fox control program.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Monitoring Program Supplementation of DBCA's TFNP fox baiting program Section 9.1.3 Table 9-3	Fox relative abundance/trends	Camera detection rates and trapping / shooting results, monitor fox relative abundance.	Then three-monthly for years 6-8 Annual report will be submitted	Compliant	DBCA provides an annual report in December each year.
Offset Site # 8 Management actions and timeframes Lot 27 Tredrea Place, Myalup Section 10.4.4 Table 10-5	Fencing	Replace existing rural boundary.	Installation 2023/2024 Ongoing annual inspections and maintenance Commencing 2024	Compliant	The replacement of the existing rural boundary fencing has been completed. Fencing inspections are undertaken routinely throughout the reporting period.
	Weed Control	Conduct baseline weed survey.	Commencing spring 2023	Compliant	Baseline weed survey has been completed in November 2023.
		Ongoing weed control program (WONS and Declared weeds).	Commenced 2018 Twice-yearly in spring and autumn or as required for years 1 and 2 Annually thereafter based on site observations	Compliant	Weed control targeting WONS and Declared Weeds was completed during this reporting period. This is ongoing.
	Pest Control	Fox control using 1080 baiting.	Annually in late winter to autumn based on site observation of fox presence Commencing after fencing has been installed	Non - Compliant	Surveillance was undertaken by a feral animal management specialist in November 2025. Fox control was undertaken in June 2026, noting that this control was not undertaken during the 2025-2026 reporting period due to delays in baiting license approvals.
		Rabbit control using RHDV and Pindone.	Annually in spring to autumn based on site observation of rabbit presence Commencing after fence installed	Compliant	Predator control contractors have been engaged to undertake rabbit control, including surveillance (identifying presence and or absence of rabbits), during the November 2025 monitoring low density of rabbits were identified. No rabbit control was required during the reporting period.
	Targeted revegetation	In bare / Completely degraded / Degraded areas 25m2.	2025 and 2026. Ongoing annual inspections	Partially Compliant	In progress - targeted revegetation/seeding has been scheduled for winter 2026.
	Firebreak	Maintain 3 m wide firebreak around the offset area boundary.	Commencing winter 2025 Ongoing annual inspections and maintenance	Compliant	Three-metre-wide firebreak has been established around the offset site boundary. Fire break maintenance is included in the Main Roads annual firebreak program.
Offset Site # 8 Monitoring Program Lot 27 Tredrea Place, Myalup Section 10.4.5	Presence and condition of fencing	Visual inspection of fence.	Annually Commencing 2023	Compliant	Visual inspections of fencing have been undertaken. This is ongoing.
	Condition of firebreaks	Visual inspection of firebreaks.	Annually Commencing 2023	Compliant	Visual inspections of the firebreaks are included in the Main Roads annual firebreak program.
	Condition of vegetation assessed	Field survey.	Annually in spring	Compliant	The baseline flora condition field survey was completed in 2023.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Table 10-6	against EPA (2016)				
	Presence and distribution (location) of WONS and Declared weed species present	Field survey (meander with opportunistic recording).	Commencing year 2023 (baseline). Twice-yearly for two years commencing year 2023. Annually thereafter	Compliant	The annual spring survey was completed of October 2025 Field Surveys have been undertaken annually, as part of the Spring flora surveys. The field survey for this reporting period was undertaken in October 2025. Note: Year 1 (2023 – 2024) and year 2 (2024 – 2025)
	Fox and rabbit control, evidence of recent (<2 months old) fox or rabbit presence	Field survey for visual evidence of fox or rabbit presence.	Annually in autumn Commencing 2024	Compliant	Inspections for visual evidence of fox and rabbit presence has been undertaken routinely throughout the reporting period. Predator control contractors undertook surveillance in November 2025.
Reporting	Offset Management Plan	Implementation of Offset Plan.	Annually (as part of annual compliance reporting)	Compliant	This CAR.
Section 11.2					
Table 11-1	Non-compliance with Offset Plan or Environmental Incident	Non-compliance with Offset Plan or Environmental Incident.	As soon as reasonably practicable but not more than seven days	Compliant	Main Roads has reported all non-compliances in accordance with the reporting requirements prescribed within the Ministerial Statement.
Adaptive Management and Review	Environmental Incident	Review of Offset Plan management and monitoring actions.	Annually for three years after construction commences	Compliant	Annual review was undertaken in February 2025.
Section 12.1	Environmental Review construction and post-construction	Review of opportunities for an improvement in environmental performance.	Then once every three years for 16 years		
Table 12-1		Revise Offset Plan (if appropriate) and seek DWER and DAWWE approval of revised plan.			
Data Management	Record management	Main Roads will maintain records on the implementation of this Offset Plan in accordance with Main Roads corporate standard document control procedures.	The retention of records held by Main Roads will be maintained and managed in accordance with the Western Australian State Records Act 2000 (WA)	Compliant	All documentation and records related to this Proposal are maintained in Main Roads document management system. All relevant documentation that is required to be published on the Main Roads webpage. Construction Project Compliance Reports Main Roads Western Australia
Section 12.3					

APPENDIX G: Table 10. Summary of Compliance – Traffic Management Plan Commitments (TMP)

APPENDIX G: Table 10. Summary of Compliance – Traffic Management Plan Commitments (TMP)

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Noise management targets Table 5 Section 3.2	Management Action 1 Outdoor noise management targets	Determination and modelling of outdoor noise management targets with regard to SPP No 5.4. (Where a residence is within the trigger distance to an existing major road, the 'Road Upgrade' criteria are applicable (60 dB LAeq(Day) / 55 dB LAeq(Night)). Outside of this, the 'New Road' criteria are applicable (55 dB LAeq(Day) / 50 dB LAeq(Night))	Pre-/Post-construction noise monitoring	Compliant	Stage 1 of the project was completed in June 2025 and outdoor noise monitoring was undertaken in the second half of 2025.
	Management Action 2 Indoor noise management targets to apply to noise sensitive receptors where the construction of noise walls is not feasible or practicable	Determination and modelling of indoor noise management targets with regard to SPP No 5.4. (Indoor noise target 40 dB LAeq Day; living and work areas and 35 dB LAeq Night bedrooms)		Not Applicable	Stage 1 of the project was completed in June 2025, and outdoor noise monitoring was undertaken in the second half 2025.
	Management Action 3 The noise management actions to ensure the noise management targets are met during the operation of the proposal	Implementation of the following noise management actions: • Construction of noise walls and screen walls (Management Action 4). Acoustic treatment of houses, where required (Management Action 5). Road design measures, (Management Action 6). Post-construction noise monitoring (Management Action 7).	As-constructed drawings	Compliant – Completed	Noise walls and screen walls have been constructed as per the design drawings.
Noise walls Table 5 Section 3.2	Management Action 4 Where noise walls will be constructed, the location, height and timing of construction of the walls	Construct noise and screening walls as per project designs (Figure 2 and Appendix B): • Noise walls have been constructed of concrete panels and meet the requirements of SPP No. 5.4. • Screen walls have been constructed to further improve noise and visual amenity along the Gelorup corridor. Noise walls will be extended along the road verge as screen walls).	As-constructed drawings	Compliant – Completed	Noise walls and screen walls have been constructed as per the design drawings.
	Management Action 5 Where acoustic treatment of houses will be implemented, the	Implement acoustic treatments on houses in consultation with affected stakeholders.	Post-completion inspection and signoff	Not Applicable	Acoustic treatments are currently being re-considered in conjunction with design changes to road surface treatments. Some property owners have elected to take funding and manage the installation of treatments themselves.

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Section 3.2	standard of treatments, timing and evidence of consultation with affected stakeholders				Consultation with landowners has been on-going during the reporting period.
Road design measures Table 5 Section 3.2	Management Action 6 Road design measures to minimise noise emissions where relevant and appropriate, including low noise road surfaces and selection of appropriate bridge expansion joints	Incorporate road design measures to minimise noise emissions where practicable, including low noise road surfaces and appropriate bridge expansion joints. As-constructed drawings. (Project Wide Locations: Interchanges and ramps (including fly-over ramps in Section 32). Treatment 14 mm Dense Graded Asphalt (DGA 14) (Section 32 Main alignment (full length through Section 32) and Bussell Highway to Ch 109665.4 (MCS2). Treatment 10 mm Stone Mastic Asphalt (SMA10) (Section 32 Location : Bridge 1905; BORR over Five Mile Brook). Treatment Mageba Polyflex Flexible Plug)	As-constructed drawings	Compliant - Completed	Road design measures to minimise noise emissions where it is practicable have been incorporated into the proposal design and implemented during construction. Road construction incorporating the noise reducing measures were completed during the 2024-2025 reporting period.
Post construction noise monitoring Table 5 Section 3.2	Management Action 7 Post-construction noise monitoring to demonstrate that noise management actions meet the relevant outdoor noise management targets	Conduct post-construction noise monitoring to demonstrate that noise management actions meet the relevant outdoor noise management targets. (Within 6 months of practical completion of Separable Portion 3 (i.e. application of final seal, to be undertaken between 6 months and 18 months after the project is open to the public) noise levels at select locations shall be measured and the results extrapolated to the design year (2041)). (At each residence, an automatic noise data logger will be located outside the most exposed habitable façade (or other location as requested))	Post-construction noise monitoring • At the time of monitoring, road traffic counts shall also be undertaken (This allows the noise data to then be extrapolated to the design year of 2041)	Compliant	Stage 1 of the project was completed in June 2025, and outdoor noise monitoring was undertaken in the second half of 2025.
Contingency actions Table 5 Section 3.2	Management Action 8 Contingency actions in the event relevant noise management targets are not met.	Implement contingency actions in the event relevant noise management targets are not met.	Post-construction noise monitoring	Not Applicable	Not required at this stage.
Auditing Section 5.1	TNMP Audit	TNMP will be audited annually by Main Roads following commencement of operation of the Proposal.	Once per calendar year for the first three years	Compliant	An audit of the TNMP was conducted as part of this annual compliance report. Post construction noise monitoring has been undertaken in the second half of 2025, during this reporting period.
Review Section 5.1	TNMP Review	TNMP will be reviewed annually following commencement of operation of the Proposal.	Once per calendar year for the first three years	Compliant	Annual review of the TNMP was undertaken in October 2025. No updates or amendments to the management plan are recommended at this time.
Data Management Section 5.3	Data Management	Main Roads will maintain records on the implementation of this AMP in accordance with Main Roads' corporate standard document control procedures.	Maintain records on the implementation of this AMP until 2040	Compliant	All documentation and records related to this Proposal are maintained in Main Roads document management system. The retention of records held by Main Roads (including external communications) are maintained and managed in accordance with the

Management Plan Reference	Management Target	Management Action	Performance Target	Compliance Status	Further Information /Supporting Documentation
Environmental Management roles and responsibilities Section 5.4	Environmental Management	Where management actions are undertaken by employees and/ or contractors of Main Roads, these will be communicated and documented to the relevant personnel through relevant environmental training.	Environmental training until 2040	Compliant	Western Australian State Records Act 2000. All personnel on the Proposal are required to complete an online induction.
Emergency Management Section 5.5	Emergency Contact Details	Emergency contact details will be signposted at appropriate locations within the Proposal Area. (Emergency response procedures will be followed in the event of an emergency / environmental incident).	Until 2040	Compliant	Permanent emergency contact details are sign posted at emergency stopping bays within the Proposal.
External communications Section 6.2	Communication register	Main Roads (and /or its Contractors) will maintain a register of communications (including any public concerns/ complaints) for the Proposal.	Until 2040	Compliant	All public concerns / complaints are managed through the Main Roads Connect system. This program maintains a register of communications and is accessible by both the Main Roads customer information centre (CIC) and the South West Gateway Alliance's Community Stakeholder Engagement Team.

APPENDIX H: Table 11. Evidence Summary Table

Cond.	Evidence Reference	Description
M2-1 (2)	M2-2 Baseline Hydrological Regime Report M2-4 Environmental Performance Report	MS1191 M2-2 Baseline Hydrological Regime Report MS1191 M2-4 Environmental Performance Report
M2-2	M2-2 Baseline Hydrological Regime Report	MS1191 M2-2 Baseline Hydrological Regime Report
M2-3, 2-4	M2-4 Environmental Performance Report	MS1191 M2-4 Environmental Performance Report
M2-5	Attachment 2 to Statement 1191	MS1191 S45C(5) amendment to Condition 2-5
M3-1 (2)	M3-2 Baseline PEC / TEC Report M3-4 Environmental Performance Report	MS1191 M3-2 Baseline PEC / TEC Report MS1191 M3-4 Environmental Performance Report
M3-2	M3-2 Baseline PEC / TEC Report	MS1191 M3-2 Baseline PEC / TEC Report
M3-3, 3-4	M3-4 Environmental Performance Report	MS1191 M3-4 Environmental Performance Report
M3-5(1)	M3-5 Phytophthora Dieback Management	MS1191 M3-5 Phytophthora Dieback Management Plan MS1191 M3-5 Phytophthora Dieback Re-Assessment Reports
M3-5(2)	M3-5 Weed Control and Management	MS1191 M3-5 Weed Control and Management
M4-3(2)	M3-4 Environmental Performance Report M5-3 Environmental Performance Report	MS1191 M3-4 Environmental Performance Report MS1191 M5-3 Environmental Performance Report
M4-4 - 4-6	M4-4_4-6 Black cockatoo artificial hollows	MS1191 M4-4_4-6 Black cockatoo artificial hollows Report
M4-7	M4-7 Environmental Performance Report	MS1191 M4-7 Environmental Performance Report
M5-2	M5-2 Construction Fauna Management Plan	MS1191 M5-2 Construction Fauna Management Plan
M5-3	M5-3 Environmental Performance Report	MS1191 M5-3 Environmental Performance Report
M5-4	M5-4 Construction Fauna Management Plan - Approval	MS1191 M5-4 Construction Fauna Management Plan – Approval
M6-3	M6-3 Habitat Fragmentation Management Plan	MS1191 M6-3 Habitat Fragmentation Management Plan
M6-7	M6-7 Habitat Fragmentation Management Plan - Approval	MS1191 M6-7 Habitat Fragmentation Management Plan - Approval
M6-8	M6-8 Predator Control Progressive Report	MS1191 M6-8 Predator Control Progressive Reports
M8-3	M8-3 Amenity Management Plan	MS1191 M8-3 Amenity Management Plan
M8-4	M8-4 Amenity Management Plan - Approval	MS1191 M8-4 Amenity Management Plan - Approval
M9-3	M9-3 Offset Management Plan	MS1191 M9-3 Offset Management Plan
M9-6	M9-6 Offset Management Plan - Approval	MS1191 M9-6 Offset Management Plan - Approval
M12-1	M12-1 Compliance Assessment Plan	MS1191 M12-1 Compliance Assessment Plan
M12-3	M12-1 Compliance Assessment Plan	MS1191 M12-1 Compliance Assessment Plan - Approval
M0	M0 SWGA CEMP	SWGA Construction Environmental Management Plan

APPENDIX I: M2.4 Environmental Performance Report – Inland Waters

Environmental Performance Report – Inland Waters

**Bunbury Outer Ring Road –
Southern Approval
Ministerial Statement 1191**

*Keeping
WA Moving*

2025-2026 Reporting Period

Contents

1 INTRODUCTION4

1.1 Background..... 4

1.2 Purpose and Scope 4

2 Environmental Performance6

2.1 Clearing metrics in relation to Inland Waters..... 6

2.2 Monitoring Program Undertaken (Condition 2-4(1))..... 6

2.3 Monitoring Results and Assessment of Outcomes (Condition 2-4(2) & 2-4(3)) 7

2.4 Outcomes Achieved..... 7

2.5 Management Actions Undertaken (Condition 2-4(4))..... 8

3 Key References and Reports9

4 Attachments10

Attachment 1: Bunbury Outer Ring Road Southern Section Annual Groundwater and Hydrological Regime Report (June 2025 – May 2026)..... 11

Attachment 2: Annual Aquatic Fauna and Surface Water Report (SLR Consulting, 2026) 12

Document Control

Report Compilation & Review	Position	Document Revision	Date
Author:	Environment Officer	Draft A	27 July 2026
Reviewer:	Principal Environment Officer CRSP	Draft B	14 August 2026
Approver:	Principal Environment Officer	Rev 0	19 August 2026

1 INTRODUCTION

1.1 Background

The Commissioner of Main Roads Western Australia (Main Roads) has been granted conditional approval for the Bunbury Outer Ring Road (BORR) Southern Section (the Proposal) under Part IV Division 2 (section 45) of the *Environmental Protection Act 1986* by the Minister for Environment. The Proposal is subject to the implementation conditions of Ministerial Statement 1191 (MS 1191) which was issued on 31 May 2022 (Minister for Environment, 2022).

In its Report and Recommendations for the Proposal (EPA Report 1714, October 2021), the EPA noted that in relation to Inland Waters, there was the potential for direct and indirect impacts to hydrological regimes and water quality in adjacent Conservation Category Wetlands (CCWs), Resource Enhancement Wetlands (REWs), the Five Mile Brook and Black-stripe Minnow.

To manage these risks, Condition 2 of MS1191 required Main Roads to undertake pre-disturbance monitoring of hydrological regimes and baseline conditions, as well as monitor those elements during and following construction. This monitoring will assist in determining if there has been project-attributable impacts to the hydrological regime and water quality of CCW and REW wetlands, Five Mile Brook or Black-stripe Minnow habitat. Condition 2 -1(2) of MS1191 states:

Condition 2-1(2)

No project attributable impacts to the hydrological regime and water quality of the following values when compared to preconstruction baseline conditions:

- (a) Five Mile Brook (incorporating MU Wetland UFI-1163 and CC Category Wetland UFI-931),*
- (b) CC Category Wetland (UFI-14478),*
- (c) RE Wetlands (UFI-1117 and UFI-15493), and*
- (d) black-stripe minnow (*Galaxiella nigrostriata*) habitats defined and mapped in the proponent's Action Management Plan CC Significant Fauna (Revision 2 August 2021) that are within or adjoins the development envelope, except for the black-stripe minnow habitats permitted to be cleared in condition 4-1(1)(e).*

Condition 2-2

Prior to ground-disturbing activities, the proponent shall undertake monitoring of the hydrological regimes of the values listed in condition 2-1(2) and submit a report to the CEO about the preconstruction baseline conditions and predicted post-development hydrological regime.

Condition 2-3

The proponent shall continue to undertake monitoring of hydrological regime and water quality during and post-construction until the CEO is satisfied that the proponent has demonstrated the outcomes in condition 2-1(2) have been met.

1.2 Purpose and Scope

This Environmental Performance Report (EPR) addresses the compliance of the Bunbury Outer Ring Road (BORR) Southern Section (the Proposal) with Condition 2-4 set out in MS 1191.

Condition 2-4 of MS 1191 requires an annual Environmental Performance Report (EPR) to be submitted to the Chief Executive Officer (CEO) of the EPA as part of the Compliance Assessment Report (CAR).

MS 1191: Condition 2-4

The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:

- 1) outline the monitoring that was undertaken during the implementation of the proposal;*
- 2) outline the results of the monitoring undertaken to report whether that the environmental outcomes specified in condition 2-1(2) were achieved;*
- 3) report whether that the outcomes in condition 2-1(2) were achieved; and*
- 4) outline any management actions undertaken during the implementation of the proposal to meet the outcomes in condition 2-1(2).*

This EPR has been prepared to address Conditions 2-1(2), 2-3 and 2-4 of MS 1191 during the reporting period. This EPR incorporates a 12-month audit period from 31 May 2025 to 31 May 2026. This is the third EPR associated with Condition 2-4 to be submitted under MS 1191.

Two reports have been prepared reviewing hydrological regime and water quality:

- Annual Groundwater Report (prepared by AECOM - Attachment 1).
- Annual Aquatic Fauna and Surface Water Report (prepared by SLR Consulting - Attachment 2).

2 Environmental Performance

2.1 Clearing metrics in relation to Inland Waters

Construction of the Proposal commenced on 1 August 2022.

There was no additional clearing or disturbance of Inland Waters during the 2025 – 2026 reporting period.

Clearing and disturbance of Inland Waters to date for the Proposal is summarised in Table 1.

Table 1. Ground disturbance and clearing in relation to Inland Waters.

Environmental Aspect	Area / Quantity specified in Ministerial Statement 1191	Area / Quantity cleared during the 2022 -2023 reporting period	Area / Quantity cleared during the 2023 -2024 reporting period	Area / Quantity cleared during the 2024 -2025 reporting period	Total Area / Quantity cleared
Conservation Category Wetlands	0.2 ha	0 ha	0.11 ha	0 ha	0.11 ha
Resource Enhancement Wetlands	1.4 ha	0.52 ha	0 ha	0 ha	0.52 ha
Black-stripe Minnow Habitat (potential)	5.5 ha	2.16 ha	0.25 ha	0.04 ha	2.45 ha

2.2 Monitoring Program Undertaken (Condition 2-4(1))

Two reports have been prepared to assist in determining the Proposal's environmental performance as it relates to Condition 2 of MS 1191:

- Annual Groundwater Report (prepared by AECOM - Attachment 1).
- Annual Aquatic Fauna and Surface Water Report (prepared by SLR Consulting - Attachment 2).

During the 2025–2026 reporting period (June 2025 to May 2026), Main Roads conducted regular surface water and groundwater level and water quality monitoring to evaluate potential impacts on specified environmental values. The program targeted:

- Five Mile Brook (incorporating Multiple Use Wetland UFI-1163 and Conservation Category Wetland UFI-931);
- Conservation Category Wetland UFI-14478;
- Resource Enhancement Wetlands UFI-1117 and UFI-15493; and
- Black-stripe Minnow defined/mapped habitats.

The scope and frequency of the monitoring included:

- Groundwater Level Monitoring: Conducted monthly across the designated monitoring bore network using telemetered loggers and manual gauging.
- Groundwater Quality Sampling: Conducted quarterly (August 2025, November 2025,

February 2026, and May 2026) using low-flow sampling techniques. Analyzed parameters included physicochemical properties (pH), Electrical Conductivity (EC), Total Dissolved Solids (TDS), Dissolved Oxygen (DO), Redox Potential, major ions, nutrients, total and dissolved metals, and organic hydrocarbons (BTEXN, TRH).

- Surface Water Monitoring: Targeted quarterly at site SW10 (Five Mile Brook).
- Bore Network Adjustments: Replacement bores MB11s and MB14s were successfully monitored as replacements for decommissioned bores BORR MW09 and BH271 respectively. Project water supply abstraction from production bores PB11, PB13 and PB14 ceased in March 2025, with post-construction monitoring continued throughout 2025–2026.

2.3 Monitoring Results and Assessment of Outcomes (Condition 2-4(2) & 2-4(3))

The results of the groundwater and water quality monitoring and outcomes included:

- Groundwater Levels: Shallow water table levels remained stable across the alignment, continuing to respond predictably to seasonal rainfall recharge events. Annual rainfall for the reporting period (812.2mm) exceeded the historical pre-construction average (729.5mm), resulting in slightly higher winter groundwater levels in 2025.
- Wetland & Ecological Value Groundwater Trends: Groundwater levels linked to all target geomorphic wetlands (CC Wetlands UFI-931 and UFI-14478; RE Wetlands UFI-1117 and UFI-15493; MU Wetland UFI-1163) and Black-stripe Minnow habitats remained well within or slightly higher than baseline historical ranges, aligning with broader regional trends.
- Water Abstraction Recovery: Following the complete cessation of groundwater abstraction from production bores (PB11, PB13 and PB14) in March 2025, local groundwater levels fully recovered back to long-term baseline conditions.
- Physicochemical Parameters: Groundwater salinity remained generally fresh to marginally brackish (<500 to <2000mg/L TDS). Localised EC spikes observed at bore BORR MW11 were attributed to the adjacent Gelorup quarry lake acting as a hydraulic sink and rainfall-driven salt flushing, rather than project construction activities.
- Metals and Nutrients: Exceedances of the ANZECC/ARMCANZ (2000) freshwater guideline values for certain dissolved metals (Al, Cu, Ni and Zn) and nutrients (N and P) were recorded. However, these concentrations remain consistent with pre-construction baseline ranges and historical regional agricultural land-use impacts. Overall metal concentrations continue a downward trend.
- Hydrocarbons: No BTEXN compounds were detected. Isolated Total Recoverable Hydrocarbon TRH detections occurred at low levels in three sampling events (BORR MW04 in August 2025, MB14s in August 2025, and BORR MW11 in May 2026).
- Surface Water: Site SW10 remained dry during all scheduled quarterly monitoring events; consequently, no surface water samples were available for collection.

2.4 Outcomes Achieved

The target environmental outcomes specified under Condition 2-1(2) were successfully achieved during the 2025–2026 reporting period. There were no project-attributable impacts on the hydrological regime or water quality of Five Mile Brook, CC Wetland UFI-14478, RE Wetlands UFI-1117 & UFI-15493, or Black-stripe Minnow habitats when compared to pre-construction baseline conditions.

2.5 Management Actions Undertaken (Condition 2-4(4))

During the implementation of the project during the 2025–2026 period, the following key management actions were maintained/undertaken to meet the outcomes in Condition 2-1(2):

1. Decommissioning of Water Supply Bores: Full cessation and discontinuation of groundwater abstraction from deep production bores (PB11, PB13 and PB14) by March 2025 to eliminate potential water table drawdown risks adjacent to sensitive wetlands and private bores.
2. Bore Network Management: Active deployment and integration of replacement monitoring bores (MB11s/d and MB14s/d) into the routine monitoring schedule to replace bores impacted or decommissioned during construction activities.
3. Post-Construction Drainage & Landscaping: progress towards completing roadside landscaping, revegetation, and modified drainage structures along the Wilman Wadandi Highway alignment to manage surface water runoff and prevent localised erosion/ponding.
4. Ongoing Defect Period Monitoring: Continuation of post-construction groundwater monitoring into the defects period to verify long-term stability and compliance.

3 Key References and Reports

A number of key references and reports have informed the preparation of this report:

Appeals Convenor (2022). Appeals Convenor's Report to the Minister for Environment: Appeals objecting to Report and Recommendations of EPA Report 1714 – Bunbury Outer Ring Road Southern Section. Appeal 045/21, April 2022. Office of the Appeals Convenor, Perth, Western Australia.

Bunbury Outer Ring Road Integrated Planning Study BORR IPT (2019). Wetland Study (BORR-02-RP-EN-007, Jan 2019).

Bunbury Outer Ring Road Integrated Planning Study BORR IPT (2020). Groundwater and Surface Water Quality Monitoring 2019-20 (BORR-00-RP-EN-005 Rev 1, August 2020).

Environmental Protection Authority (2021). Bunbury Outer Ring Road Southern Section, Commissioner for Main Roads Western Australia. Report 1714, October 2021. Environmental Protection Authority, Perth, Western Australia.

South West Gateway Alliance (2021). Bunbury Outer Ring Road Determination of Design Groundwater Levels (SWGA-00-270-00-REP-0001, September 2021).

Southwest Gateway Alliance (2022). Bunbury Outer Ring Road (Southern Section) Baseline Hydrological Regime Report. (SWGA-00-134-00-REP-0006, July 2022).

WRM (2021) Bunbury Outer Ring Road Southern Section: Targeted Conservation Significant Aquatic Fauna Monitoring 2021. Unpublished report by Wetland Research and Management to SWGA. December 2021.

4 Attachments

Attachment 1: Bunbury Outer Ring Road Southern Section Annual Groundwater and Hydrological Regime Report (June 2025 – May 2026)

Southern section: Annual groundwater and hydrological regime report

June 2025 - May 2026

28-Jul-2026
Wilman Wadandi Highway - Southern Section
Doc No. 60737273_ENV001

Southern section: Annual groundwater and hydrological regime report

June 2025 - May 2026

Client: Main Roads Western Australia

ABN: 50 860 676 021

Prepared by

AECOM Australia Pty Ltd

Whadjuk Noongar Country, Level 15, Alluvion Building, 58 Mounts Bay Road, Perth WA 6000, GPO Box B59, Perth WA 6849, Australia

T +61 1800 868 654 www.aecom.com

ABN 20 093 846 925

28-Jul-2026

Job No.: 60737273

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 and ISO45001.

© AECOM Australia Pty Ltd (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Quality information

Document Southern section: Annual groundwater and hydrological regime report
Ref 60737273
Date 28-Jul-2026
Originator Jess Smith
Checker/s Gary Brophy
Verifier/s Gary Brophy

Revision history

Rev	Revision date	Details	Approved	
			Name/position	Signature
0	27-Jul-2026	Final	Gary Brophy Technical Director- Hydrogeology	

Table of contents

Executive summary	i
1.0 Introduction	1
1.1 Project background	1
1.2 Purpose and scope	1
2.0 Site characteristics	4
2.1 Climate	4
2.2 Topography	4
2.3 Groundwater	4
2.4 Surface water	6
2.4.1 Watercourses	6
2.4.2 Wetlands	6
2.4.3 Black-Stipe minnow habitat	7
2.5 Construction related activities	7
3.0 Monitoring program	8
3.1 Project related water supply monitoring	8
3.2 Applied guidelines	8
4.0 Methodology	10
5.0 Monitoring results	11
5.1 Groundwater levels	11
5.2 Water quality	12
5.2.1 Surface water quality	13
5.2.2 Groundwater quality	13
6.0 Quality Assurance/ Quality Control	17
7.0 Monitoring compliance	18
8.0 Recommendations	20
9.0 Conclusions	21
10.0 References	22
Appendix A	
Bore summary details	A
Appendix B	
Groundwater level data	B
Appendix C	
Groundwater quality data	C
Appendix D	
Laboratory certificates	D
Appendix E	
Field sheets	E
Appendix F	
Calibration records	F

List of tables

Table 1	Bunbury monthly rainfall data (BOM Station 009965)	5
Table 2	Monitoring requirements	9
Table 3	Field work methodology and demonstration of compliance	10
Table 4	Groundwater and surface water quality – Laboratory summary results	14
Table 5	Summary of monitoring compliance abbreviations	18
Table 6	Compliance of monitoring in the project southern section 2025-2026	19

List of figures

Figure 1	Project area	2
----------	--------------	---

Executive summary

As a regulatory condition (Conditions 2-1(2) and Condition 2-3) of Ministerial Statement 1191 for the Bunbury Outer Ring Road (southern section), officially named the Wilman Wadandi Highway, Main Roads WA (MRWA) is required to complete an annual review to assess the hydrological regime and water quality when compared to preconstruction baseline conditions of:

- Five Mile Brook (incorporating Multiple Use Wetland (MU Wetland) (UFI-1163) and Conservation Category Wetland (CC Wetland) (UFI-931)
- CC Wetland (UFI-14478)
- Resource Enhancement Wetlands (RE Wetland) (UFI-1117 and UFI-15493)
- Black-stripe Minnow (*Galaxiella nigrostriata*) habitat.

This monitoring review assesses compliance with the relevant Ministerial Statement conditions and summarises the groundwater and surface water monitoring data for the reporting period from June 2025 to May 2026 in context with local baseline conditions.

Targeted groundwater and surface water levels and quality have been monitoring since 2019, prior to construction commencement and continued through 2026. The post-construction period now requires continued groundwater monitoring to assess any change as a result of the project. Key findings from monitoring during the 2025 to 2026 post-construction period include:

- Shallow water table levels continue to respond to rainfall recharge events and have remained stable.
- Groundwater levels linked to all geomorphic wetlands and TEC/PEC areas follow trends within or slightly higher than the historic ranges that are consistent with regional trends.
- Three total recoverable hydrocarbons were detected at sampling sites BORR MW04 (August 2025), BORR MW11 (May 2026), and MB14s (August 2025).
- Groundwater salinity remained fresh to slightly brackish with a spike in levels noted after high rainfall. BORR_MW11 (located nearby the Bunbury Basalt quarry) showed a dramatic increase in electrical conductivity (EC) following rain as it has in the past. This is likely due to a build-up of salts in the sediments being flushed out after rain.
- No surface water samples were available for collection.

Groundwater monitoring was completed in accordance with the outlined monitoring program. This report includes results from MB11 and MB14, replacement bores for MB09 and BH27.1 respectively.

Based on the review, groundwater levels and water quality remain within historical ranges and there are no significant changes when compared with baseline data as presented in *Bunbury Outer Ring Road, North, Central and Southern Section's Groundwater and Surface Water Monitoring 2019-2020* (SWGA, 2020) and the *Bunbury Outer Ring Road (Southern Section) Baseline Hydrological Regime Report* (SWGA, 2022).

It is concluded that MRWA was compliant with Condition 2-1(2) and Condition 2-3 of Ministerial Statement 1191 during the reporting period.

1.0 Introduction

1.1 Project background

MRWA is currently constructing a 27-kilometre highway, the Bunbury Outer Ring Road (BORR), officially named the Wilman Wadandi Highway, that links Forrest Highway to Bussell Highway. The project includes 19 kilometres (km) of dual carriageway connecting the Forrest Highway at Kingston, to the South-Western Highway, south of Centenary Road in the Shire of Capel (Figure 1).

The project area is located approximately 170 km south of Perth and occurs within the City of Bunbury and Shires of Capel, Dardanup and Harvey. The majority of the land within the project area is zoned rural (cleared agricultural land), with remaining land zoned as a mix of railways, urban, urban deferred, regional open space and industrial. The alignment predominately comprises cleared rural land with some areas of remnant vegetation, predominately associated with road reserves and drainage lines.

Construction commenced on 24 February 2022 and the BORR was officially opened in December 2024. Minor construction activities have been undertaken since the opening.

1.2 Purpose and scope

The Commissioner of Main Roads was granted conditional approval for the Bunbury Outer Ring Road southern section (the Proposal) under Part IV Division 2 (section 45) of the *Environmental Protection Act 1986* by the Minister for Environment. The project is subject to the implementation conditions of Ministerial Statement 1191 (MS 1191) which was issued on 31 May 2022 (Minister for Environment, 2022).

Conditions 2-1(2) and Condition 2-3 of MS1191 requires that:

No project attributable impacts to the hydrological regime and water quality of the following values when compared to preconstruction baseline conditions:

(a) Five Mile Brook (incorporating MU Wetland (UFI-1163) and CC Wetland (UFI-931))

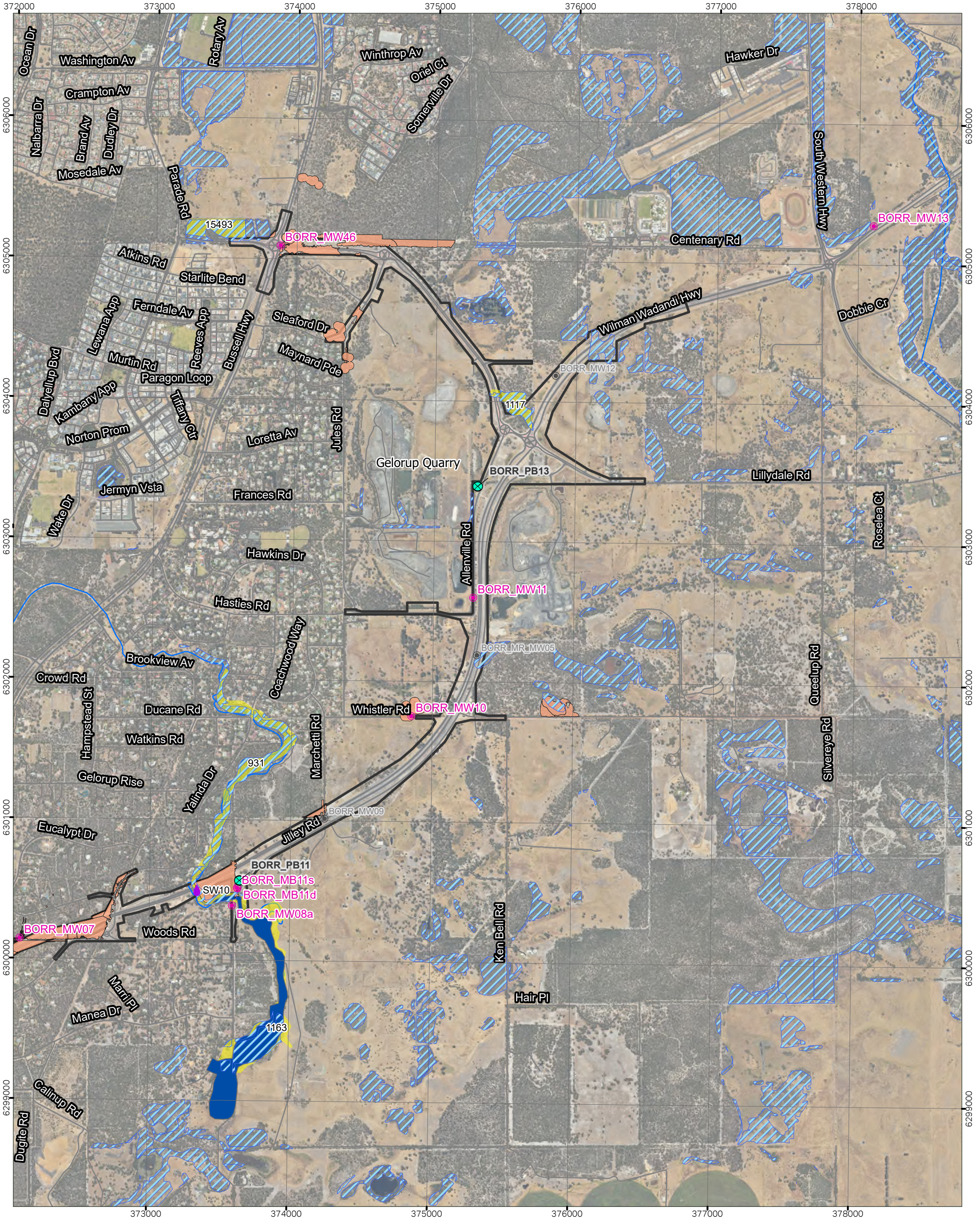
(b) CC Wetland (UFI-14478)

(c) RE Wetlands (UFI-1117 and UFI-15493)

(d) *Black-stripe Minnow (Galaxiella nigrostriata) habitats defined and mapped in the proponent's Action Management Plan Conservation Significant Fauna (Revision 2 August 2021) that are within or adjoins the development envelope, except for the Black-stripe Minnow habitats permitted to be cleared in condition 4-1(1)(e).*

This annual monitoring review assesses the compliance with the above conditions and summarises the groundwater and surface water monitoring data for the reporting period from June 2025 to May 2026 in context with local baseline conditions. Locations of geomorphic wetlands, Threatened and Priority Ecological Communities (TECs/PECs), and groundwater monitoring bores are shown on (Figure 1).

The objective of this report is to assess the impact (if any) on the hydrological regime and water quality of the identified geomorphic wetlands and TECs/PECs, during the post-construction period of the BORR southern section. To achieve this, ongoing groundwater level and quality monitoring data is compared with baseline data as presented in the *Bunbury Outer Ring Road, North, Central and Southern Section's Groundwater and Surface Water Monitoring 2019-2020* (SWGA, 2020) and the *Bunbury Outer Ring Road (Southern Section) Baseline Hydrological Regime Report* (SWGA, 2022).



AECOM Delivering a better world

PROJECT ID 60737273
DATE MODIFIED 08 JUL 2026

CREATED BY ROB.MCGREGOR
APPROVED BY G.BROPHY

1:25,000
(when printed at A4)

0 100 200 300 400 metres
GDA 1994 PERTH COASTAL GRID 1994

DATA SOURCES Base Data: (c) Based on information provided by and with the permission of the Western Australian Land Information Authority trading as Landgate (2019)
Service Layer Credits: Roads (Simplified) (LGATE-1995), WMS, OpenStreetMap, Map data © OpenStreetMap contributors, Microsoft, Facebook, Google, Esri, Community Map contributors, Map layers by Esri
Project: \\na.aecomnet.com\LS\A\AL\Perth-AUPER\Legacy\Projects\60737273_MRWA_ETIS-BDS_205-22\1109 BORR Post-construction Groundwater Monitoring\900_CAD_GIS\920_GIS\02_APRX\01_2026_GW_Annual_Review\01_2026_GW_Annual_Review.aprx (rob.mcgregor),
Layout: 25_01_001_GW_Monitoring, Last exported: 8/07/2026 3:00 PM

- LEGEND
- Ministerial Boundary 1191 (STH SWGA)

TECPEC South

Black-Stripe Minnow

Wetland Habitat

Potential Black Stripe

Habitat

Rivers

Surface Water Sampling Point

Groundwater Boreholes

Monitoring Bore

Decommissioned

Production Bore

Decommissioned



Groundwater Monitoring Locations

MAIN ROADS WESTERN AUSTRALIA

BORR ANNUAL GROUNDWATER REVIEW TO 31ST MAY 2026

Figure 1.1

2.0 Site characteristics

2.1 Climate

The project area falls within the Swan Coastal Plain. This area is typically described as a warm Mediterranean climate. It characterised by a hot, dry summer and a mild, wet winter. Table 1 presents Bunbury (ID 009965) monthly rainfall data in context with the project (BOM, 2026).

In context to the assessment of environmental change, rainfall predominantly occurs during winter months. Historical (1995 to 2021) average annual rainfall recorded at the Bunbury meteorological station is 729.5 mm/yr. During baseline monitoring, rainfall water reported below averaging in all periods prior to construction commencing in 2022. During the current reporting period, annual rainfall (812.2mm) was above both the historical (753.6 mm for the 2018 to 2026 average) and the previous two years (791.7 mm) (Table 1). This increased rainfall resulted in slightly higher groundwater levels in the project area in the winter of 2025.

2.2 Topography

Topography ranges from 5 to 39 m above the Australian Height Datum (AHD) with the more elevated areas associated with the Spearwood sands and Bassendean sands and the least elevated areas associated with drainage lines (5 to 10 mAHD) (GoWA, 2020).

2.3 Groundwater

The project area occurs within the Bunbury Groundwater Area, which is proclaimed under the *Rights in Water and Irrigation Act 1914* (RIWI Act) and therefore has numerous licenced and unlicensed private and commercial bores.

In context to the project, the primary groundwater units underlying the southern section of the BORR alignment are:

- The Superficial Aquifer: a thin (0 to 40 m thick) surficial, predominantly unconfined layer that is recharged by direct infiltration of rainfall. This forms a key aquifer for local private groundwater abstraction.
- The Leederville Aquifer: a confined formation ranging from 15 to 300 m below ground level (mbgl), which is recharged by downward seepage from the overlying Superficial Aquifer and direct infiltration in outcrop areas. This forms an aquifer for local private and commercial abstraction.
- The Yarragadee Aquifer: a confined aquifer (within the project area) underlying the Leederville Aquifer and ranging from 600 m to 1,200 m thick. The Yarragadee Aquifer is recharged by direct infiltration of rainfall where unconfined, and elsewhere through limited seepage from the overlying Leederville Aquifer (Department of Water, 2009). This forms a key aquifer for local private and project related abstraction (PB11 and PB14).

A total of nineteen (19) groundwater wells were installed in the southern section in 2018 for the targeted groundwater and Acid Sulfate Soil (ASS) investigations (BORR IPT, 2020). Water level data was initially monitoring using both telemetered and non-telemetered loggers.

Groundwater typically flows in a westerly direction towards the Indian Ocean (BORR IPT, 2020). Depth to groundwater in the southern section is generally driven by topography with the lower-lying areas having groundwater that are shallow, with seasonal variability of up to 2 m, ranging between groundwater that is close to or at the surface, to between 5 m and 17 mbgl (BORR IPT, 2020). In more elevated areas linked to the costal sand ridgeline, the depth to groundwater can be over 18 mbgl.

Groundwater salinity in the Superficial Aquifer is generally fresh to marginally brackish (<500 to <2,000 mg/L Total Dissolved Solids (TDS)). There is, however, likely to be some localised variation because of poor drainage and subsequent shallow perched water tables leading to evapoconcentration of salts during the summer months.

Table 1 Bunbury monthly rainfall data (BOM Station 009965)

Month	1995-2021	Reporting period								2021 to 2026 average
		2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025	2025-2026	
	Pre-construction historical average	Baseline			Construction period					
		mm								
Jun	135.7	178.0	182.0	152.2	101.0	110.4	167.4	171.8	190.0	148.1
Jul	145.5	165.2	94.6	129.0	199.8	226.2	168.6	232.0	194.4 ¹	204.2
Aug	118.2	146.2	91.8	65.6	108.2	132.8	126.8	237.8	130.8	147.3
Sep	79.7	29.2	30.0	88.2	95.2	70.2	72.4	40.6	79.6	71.6
Oct	36.4	37.6	53.2	No data	123.4	30.6	11.8	44.8	34.6	49.0
Nov	21.4	3.0	15.4	No data	12.6	18.0	2.6	22.6	26.4	16.4
Dec	15.8	5.8	0.2	5.0	10.6	0.0	1.0	4.8	0.0	3.3
Jan	10.4	No data	1.2	0.2	0.0	0.6	0.0	9.2	3.2	2.6
Feb	8.4	No data	12.4	54.6	2.8	0.0	0.0	1.4	0.0	0.8
Mar	19.7	21.2	35.2	36.4	8.6	15.8	0.4	17.4	70.0	22.4
Apr	41.1	16.2	23.6	74.0	61.6	112.4	0.0	41.2	31.6	49.4
May	97.2	34.8	114.4	147.8	111.0	37.0	177.4	31.4	51.6	81.7
Total	729.5	637.2	654.0	753.0	834.8	754.0	728.4	855.0	812.2	796.9

Note: **Bolded** totals are below the 1995-2021 pre-construction historical average.

¹ Missing data from 9th to 16th July 2025

The underlying Leederville and Yarragadee Aquifers are generally fresh, particularly so for the upper sandier parts. Deeper in the aquifer, salinities can increase somewhat, reported to be up to the region of 800 mg/L TDS (Commander, 1984).

2.4 Surface water

2.4.1 Watercourses

Five Mile Brook is the most northern waterway in the Geographe Catchment, and the key waterway within the southern section. The catchment supports an agricultural industry dominated by beef grazing. Rural lifestyle lots and urban residential areas associated with the southern extension of Dalyellup Estate are key land uses in the lower reaches of the catchment.

- Five Mile Brook typically flows only in the winter months, discharging to Geographe Bay at Minninup Beach. The waterway is modified into an artificial drain for several kilometres before reaching the bay. In the summer months the mouth of the creek closes over due to lack of flow. When the flow intensifies in the winter months the drain fills, the sandbar breaks and water flows into Geographe Bay. Since 2000, the mean annual flow for Five Mile Creek is 5 GL/year of a total of 203 GL/year for the waterways of the Geographe catchment (DWER, 2023).
- Five Mile Brook generally has poor water quality, likely resulting from a combination of soils which do not retain nutrients, and intensive land uses within the catchment (DWER, 2023). The nutrient loads in Five Mile Brook are driven by intensive agricultural land-uses, with a high proportion of beef grazing in the catchment. Due to the seasonal nature of this waterway, there are limited data on which to assess water quality. The available data show phosphorus and nitrogen concentrations to be above water quality targets (DWER, 2023).

2.4.2 Wetlands

2.4.2.1 Wetlands of international significance

No Ramsar wetlands (Ramsar Sites (DBCA-010)) are located within 10 km of the southern section of the project area. The Ramsar listed Peel-Yalgorup System is located approximately 20 km to the north of the project alignment and the Vasse-Wonnerup System is located approximately 19 km to the south-west of the project alignment (GoWA, 2020).

2.4.2.2 Geomorphic wetlands

Wetlands on the Swan Coastal Plain have been classified using a geomorphic-hydrologic approach to wetland classification (Hill, Semeniuk, Semeniuk, & del Marco, 1996; Semeniuk & Semeniuk, 1995). Wetlands have also been evaluated and assigned an appropriate management category which provides guidance on the nature of wetland management and protection that the wetland should be afforded. These include CC Wetlands, MU Wetlands, and RE Wetlands.

The identified wetland areas within the southern sections of the project include:

- *MU Wetland UFI-1163 – a multiple use wetland (sumpland basin) forming semi-permanent pools within Five Mile Brook south of the proposed alignment*
- *CC Wetland UFI-931 – a conservation category wetland (sumpland basin) forming semi-permanent pools within Five Mile Brook north of the proposed alignment*
- *CC Wetland UFI-14478 - a conservation category wetland (sumpland basin) forming a low-lying basin south of the alignment on Bussell Highway*
- *RE Wetland UFI-1117 - a resource enhanced sumpland basin formed in a low-lying basin near Lilydale Road and partially within the alignment*
- *RE Wetland UFI-15493 - a resource enhanced dampland formed in a low-lying basin west of the alignment near Bussell Highway.*

2.4.3 Black-Stipe minnow habitat

The Black-stripe Minnow is endemic to south-western Australia and is now rare throughout its distribution. Black-stripe Minnow have been confirmed within the Five Mile Brook, located within the southern section of the project (WRM 2021). Figure 1 presents the potential habitats in the southern section.

Typical habitat conditions include tannin-stained water bodies with large areas of intact riparian vegetation. Importantly, given the high mobility of the species, it is possible that colonisation/recolonisation would occur after a large rainfall event if the wetlands become connected.

2.5 Construction related activities

Stage 1 construction activities commenced in the southern section in August 2022 and were completed in the 2025-2026 reporting period, with only minor construction activities continuing during the reporting period. Activities undertaken that may influence minor changes to the local hydrological regime include:

- Modified landuse with roadside landscaping has seen the planting of vegetation in areas adjacent to the curb.
- Completion of bridge construction in the Five Mile Brook areas. The bridge construction is unlikely to be detrimental to the Black-stripe Minnow's habitat given the creature's high mobility during periods of surface water inundation and the connectivity of these wetlands. Ecologically it is likely that the bridge will be beneficial as the bridge footing is a preferred habitat for Carter's Freshwater Mussel;
- Addition of fill material modifying drainage and surface water ponding areas.
- Lowering of the water table due to groundwater abstraction for water supply (PB11, PB13 and PB14) in late 2024 before the discontinuation of production bores in March 2025.
- Cessation of use of water supply production bores (PB11, PB13 and PB14) in March 2025.

3.0 Monitoring program

As per the *Environmental Brief – Groundwater Monitoring* (D25#527331, MRWA, June 2025), monitoring commitments to assess the potential impacts of the project are summarised below in Table 2. Monitoring locations are presented on Figure 1 and align with Black-stripe Minnow (*Galaxiella nigrostriata*) habitat monitoring sites. During the previous reporting period, the usage of project related water supply bores (PB11, PB13 and PB14) decreased substantially and they were removed from the monitoring program. Abstraction from the production bores ceased fully in March 2025. Details of monitoring bore construction are presented in Appendix A.

Groundwater and surface water levels from monitoring sites have been used to compare against pre-construction baseline and trends in reference monitoring wells as presented in the *Bunbury Outer Ring Road - Groundwater and Surface Water Monitoring Report (2019-2020)* (BORR IPT, 2020) and the *Bunbury Outer Ring Road (southern section) Baseline Hydrological Regime Report* (SWGA, 2022).

3.1 Project related water supply monitoring

Water supply production bores PB11, PB13 and PB14 (Figure 1), were installed in the southern section of the alignment to provide construction water. To minimise local impacts on other users and potential environmental receptors, production bores were designed to draw groundwater from deeper zones up to 80 m depth, from within the Yarragadee Formation.

Due to the proximity to several private groundwater users in the Gelorup Region, as recommended by the Department of Water and Environmental Regulation (DWER email correspondence 10 November 2022), an integrated monitoring programme of both PB11 and PB14 was initiated to record the rate of discharge and how the local aquifer responds. Monitoring provided information of the longer-term aquifer response to pumping in this area, whether changes during bore operations are within expected ranges, and allow efficient response to groundwater related issues as local construction and water use ramps up.

Cessation of production bores (PB11, PB13 and PB14) for project water supplies concluded in March 2025, resulting in local recovery of groundwater levels back to long-term levels.

3.2 Applied guidelines

Water quality for physio-chemical parameters and nutrients has been compared against ANZECC/ARMCANZ (2000) freshwater guideline values for the protection of slightly/moderately disturbed wetland ecosystems in the southwest of Western Australia as these are the most recent locally specific guidelines. Results have also been compared to historical data from the pre-development monitoring program (BORR IPT 2020, SGWA 2021).

Table 2 Monitoring requirements

Monitoring location ¹	Locality		Environmental value ²	Monitoring requirements	Comments	
Groundwater						
BH27.1 (9 m) ³	West of Five Mile Brook	Black-stripe Minnow (<i>Galaxiella nigrostriata</i>) habitat	-	<u>Monthly</u> Water level data logging – telemetry and manual <u>Quarterly</u> - Field parameters: pH, temperature, conductivity, redox, total oxygen, TDS - Laboratory analysis: Inorganics: pH, EC, TDS Acidity and Alkalinity: Carbonate as CaCO3, Bicarbonate as CaCO3, Hydroxide as CaCO3, Total Alkalinity, Acidity Major Ions: Calcium, Magnesium, Potassium, Sodium, Chloride, Sulphate, Cations, Anions, Ionic Balance, Sulfide Nutrients: Ammonium, ammonia, Nitrogen (oxidised), Total Nitrogen, Reactive Phosphorus, Kjeldahl Nitrogen, Total Phosphorus Metals: Aluminium, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Manganese, Nickel, Selenium, Zinc BTEXN: Benzene, Toluene, Ethylbenzene, Xylene, Naphthalene TRH: Total Recoverable Hydrocarbons	Impacted by construction	
MB14s (14.55 m) and MB14d (60.5 m)						Replacement for BH27.1 and water table drawdown from abstraction (PB14)
BORR_MW46 (6 m)			RE Wetland UFI-15493			
BORR_MW04 (13 m)	South of Five Mile Brook		CC Wetland UFI-14478			
BORR_MW05 (8 m)			CC Wetland UFI-14478			
BORR_MW06 (8 m)			-			
BORR_MW07 (10.50 m)			-		Limited saturated thickness to collect water sample	
BORR_MW08a (6.0 m)			MU Wetland UFI-1163 (Five Mile Brook)			
<i>BORR_MR_MW05</i> (5 m) ³			-		Impacted by construction	
<i>BORR_MW09</i> (5.5 m)	Preston River to Five Mile Brook		CC Wetland UFI-931		Impacted by construction	
BORR_MW10 (4 m)			CC Wetland UFI-931			
BORR_MW11 (4.0 m)			-			
<i>BORR_MW12</i> (4.5 m) ³			RE Wetland UFI-1117		Landholder access restrictions Impacted by construction Nov 23	
MB11s (15.15 m) and MB11d (60 m)					MU Wetland UFI-1163 (Five Mile Brook)	Replacement for BORR_MW9 and water table drawdown from abstraction (PB11)
Surface water						
Surface Water 10 (SW10)	Five Mile Brook	Black-stripe Minnow (<i>Galaxiella nigrostriata</i>) habitat	MU Wetland UFI-1163 (Five Mile Brook)	<u>Quarterly</u> - Field parameters: pH, temperature, EC, redox, total oxygen, turbidity - Laboratory analysis: <u>In addition to the above</u> Inorganics: TSS Pesticides: Organophosphates, Glyphosate	Sample collected in August 2024. Sample location was found to be dry otherwise.	
¹ Bore ID and depth (mbgl) ² MU – Multiple Use; CC – Conservation Category; RE - Resource Enhanced ³ – Destroyed or no access available						

4.0 Methodology

Fieldwork was undertaken as described in Table 3.

Table 3 Field work methodology and demonstration of compliance

Activity / item	Details
Groundwater bore - gauging	All monitoring bores were gauged using an interface probe to determine the depth to groundwater prior to the commencement of sampling. Groundwater gauging recorded information is presented in Appendix B.
Groundwater bore - sampling method	All bores were sampled using low-flow technique (peristaltic pump). Ex-situ measurements of water quality parameters were taken on site using a multi-parameter instrument (YSI Pro DSS) fitted with a flow-through-cell. The parameters included pH, dissolved oxygen (DO), redox potential, temperature, and EC. Field parameters are presented in Appendix E.
Surface water - sampling method	The YSI Pro DSS was used to take in-situ measurements of water quality parameters, including the parameters taken at groundwater bores and water turbidity. Where water level permitted, the measurements were profiled at different depths. Field parameters are presented in Appendix E.
Sample analysis	Primary samples were analysed by ALS, a NATA accredited laboratory, using standard methods. Laboratory quality assurance and quality control (QA/QC) measures included duplicate and rinsate samples. Duplicate samples were taken at one groundwater bore and one surface water location each round, and rinsates were taken at a frequency of one per day of sampling.
Field documentation	All field records were logged on standardised field forms and included the date and time, location, field personnel, QA/QC sample information and details of the sampling observations, provided in Appendix E.
Sample preparation, preservation and transportation	Sampling was undertaken in accordance with AS/NZS 5667.1:1998. Samples were placed in laboratory-supplied bottles containing appropriate preservatives. Samples for dissolved metals were not field filtered. Samples were labelled in accordance with the monitoring location, field personnel and date, placed in eskies chilled with ice and forwarded to the laboratory under standard chain of custody (COC) procedures. Copies of the laboratory documentation are presented in Appendix D.
Decontamination procedure	Decontamination of all non-disposable equipment was completed between sample locations. Disposable equipment such as bladders and gloves were replaced between each location.

5.0 Monitoring results

5.1 Groundwater levels

Table 2 outlines the ten groundwater monitoring bore locations and one surface water location that have formed the southern section groundwater level monitoring program for the past 12 months.

Groundwater level monitoring of MB11s and MB14s, in relation to water supply abstraction from production bores, PB11 (Five Mile Brook) and PB14 (Bussell Hwy), provided additional data to replace bores impacted during construction. With the reduced abstraction and subsequent decommissioning of the production bores only minor changes were noted in the corresponding monitoring bores.

The groundwater levels and water quality in available bores were monitored over a 12-month period from June 2025 to May 2026 as per Table 2.

Groundwater levels from current and historical monitoring are presented in tabular and graphical formats in Appendix B. Where available, each hydrograph presents historical data logger information and manual groundwater levels alongside Bunbury daily rainfall totals and bore screened intervals. To provide some context to baseline conditions, hydrographs include data from August 2018 to May 2026.

To assess groundwater related observations, the southern section has been divided into four discrete topographic zones incorporating:

- Eastern Topographic Flats – lower elevations linked to Palusplain and shallow sediments overlaying Bunbury Basalt: Areas of potential Black-stripe Minnow habitat.
- Five Mile Brook area: Areas of known Black-stripe Minnow habitat.
- Residential Ridgeline – elevated residential areas linked to the coastal dunes and limestone ridgeline.
- West of ridgeline – western flank of the ridgeline and towards the ocean: Areas of potential Black-stripe Minnow habitat.

Shallow groundwater level observations for the 2025-2026 reporting period include:

Eastern Agricultural Flats: CC Wetland UFI-931 and RE Wetland UFI-1117 – outside influence of the Gelorup quarry (BORR MW09, BORR MW10, and MR MW05, MB11s):

- The pre-construction (baseline) depth to groundwater ranged between 1.78 mbgl (winter high) to 3.21 mbgl (summer low) with influences from local drainage features and links to the depth of the underlying Bunbury Basalt.
- The 2025-2026 seasonal depth to groundwater ranged between 1.87 mbgl (winter high) to 3.59 mbgl (summer low).
- Groundwater elevation ranges between 11.06 mAHD (MB11s; June 2025) to 18.46 mAHD (BORR MW10; September 2025) with groundwater flow gradients generally towards the west or local drainages.
- Average high seasonal variability of 1.73 m when compared with a baseline of up to 1.43 m.
- Abstraction from PB11 (Yarragadee Aquifer) reported no measurable response in the water table superficial aquifer as measured in MB11s.

Quarry influence (BORR MW11):

- A seasonal low groundwater level was in May 2026 (1.49 mbgl), with the bore becoming dry in March 2026. In September 2025 a high level of 0.233 mbgl was recorded following winter rainfall.
- The local groundwater level had a seasonal range of 1.16 m compared to baseline conditions of 3.4 m with fluctuations likely linked to levels in the adjacent quarry lake.

Five Mile Brook: MU Wetland UFI-1163 (BORR MW08a):

- The depth to groundwater for the 2025-2026 period, ranged between 1.78 mbgl (winter high; September 2025) to 3.89 mbgl (summer low; May 2026). These are similar to pre-construction baseline values of 1.84 mbgl to 4.24 mbgl, likely a result of the increased rainfall and recharge to the Superficial Aquifer.
- A seasonal variation of 2.11 m compared with baseline value of 2.40 m.

Residential Ridgeline (BORR MW07):

- The groundwater level at BORR MW07 ranged between 9.95 mbgl (winter) to 10.32 mbgl (summer) in the 2025-2026 review period. This compares with the baseline levels of between 9.89 mbgl to 10.29 mbgl respectively showing a relatively consistent groundwater level throughout the seasons.
- A very low seasonal variation in the groundwater level of between 0.37 m (2025-2026 reporting period) and 0.41 m (baseline) was observed. This again highlights the current similarity with baseline conditions in the higher elevation areas.
- The topographic high ridgeline with underlying limestone and well drained sand stratigraphy and therefore not forming suitable habitat for the Black-stripe Minnow.
- This area forms a widespread residential area with private landowners reliant on groundwater use and therefore likely impacting on groundwater levels and quality throughout the year peaking during the summer dry season.

West of Ridgeline: RE Wetland UFI-15493 and CC Wetland UFI-14478 (BORR MW04, BORR MW05, BORR MW06, BORR MW46, BH27.1, MB14s):

- Depth to groundwater ranged between 3.68 mbgl (MW46; winter high) to 9.39 mbgl (MB14s; summer low) compared to baseline conditions of between 4.77 mbgl (winter) and 5.46 mbgl (summer) with seasonal high levels driven by local drainage features.
- Groundwater elevation ranges between 2.30 mAHD and 7.18 mAHD with groundwater flow gradients generally westward.
- A seasonal variability of up to 0.82 m compared with a baseline of up to 0.69 m, reflecting the impact of the increased rainfall.

Year on year comparisons show a higher groundwater level, indicating good recharge from the higher rainfall experienced. This is contrasted with the decreasing water level experienced during the drier months of the 2023-2024 period.

5.2 Water quality

As per Table 2, a total of ten groundwater monitoring bore locations and one surface water location forms the groundwater and surface water related water quality monitoring program for the BORR southern section. Several monitoring program related aspects include:

- Monitoring bores MR MW05 and BH27.1 have been decommissioned due to construction activities. MB14s and MB14d have replaced BH27.1.
- Monitoring bore MW09 has been replaced by MB11s and MB11d.
- BORR MW07 has had restricted sampling since February 2022 due to the bore depth having limited saturated thickness restricting sample collection using the peristaltic sampling pump.
- BORR MW8a has been subject to consistent tree root blockage. These blockages may affect groundwater level readings as well as chemical analysis.
- BORR MW12 has historically had limited access due to landowner restrictions.
- Samples from BORR MW11 had elevated groundwater concentrations as a likely consequence of the adjacent quarry pit lakes forming a local hydraulic sink and therefore not likely representative of a project related change.

Groundwater quality data from available bores in the reporting period (2025-2026) are presented with baseline (2018-2021) and historical data (2021-2025) in tabular and graphical formats in Appendix C. The time plots present analyte concentrations in context with Bunbury monthly rainfall totals.

To assess the water quality characteristics and potential change because of project construction related activities on the Black-striped Minnow habitat, it is important to highlight and assess in context with local landuse changes. The project area is in an area that has been extensively cleared and fertilised for grazing. In 2012, the DoW reported that waterways in the Leschenault Catchment regularly exceed ANZECC and ARMCANZ guidelines. The results presented herein are of a similar order of magnitude to the historical results presented by the DoW (2012). As a result, exceedances of the ANZECC and ARMCANZ guidelines are not linked to project-related activities.

5.2.1 Surface water quality

Surface water quality was unable to be measured during the reporting period due to the monitoring location being dry during all monitoring events.

5.2.2 Groundwater quality

Groundwater samples were collected quarterly in August and November 2025, and February and May 2026. Table 4 presents a summary of groundwater quality results including pre-construction baseline with the current 2025-2026 reporting period.

Dissolved metals in groundwater are filtered prior to analysis to remove the particulate matter. In comparison, total metals are performed on surface water samples. To allow comparison with groundwater results, guideline “dissolved” values have been assumed and presented in tabular format highlighting exceedances for 2025-2026 in Appendix C.

The reporting period (June 2025–May 2026) shows water quality parameters largely within the historical range established pre-construction (before Feb 2022). No significant or sustained increases in dissolved metals, nutrients, or salinity were observed post-construction. Seasonal trends (rainfall-driven dilution and concentration) continue to dominate water quality changes. Construction activities (post-Feb 2022) have not resulted in persistent or acute water quality impacts based on the available data.

5.2.2.1 Groundwater physicochemical parameters

Based on the four discrete topographic zones groundwater quality observations for the 2025-2026 reporting period included:

Eastern Agricultural Flats: CC Wetland UFI-931 and RE Wetland UFI-1117 – outside influence of the Gelorup quarry (BORR MB11s and BORR MW10): Lower elevations linked to Palusplain and shallow sediments overlaying Bunbury Basalt: *Areas of potential Black-stripe Minnow habitat.*

- The pH range for this reporting period was found to be between 6.27 to 7.31 is lower than that of the pre-construction historical pH range of between 6.60 to 7.70.
- The groundwater salinity (measured as EC ranged between 324 to 830 $\mu\text{S}/\text{cm}$, slightly higher than the pre-construction values of between 168 to 779 $\mu\text{S}/\text{cm}$.
- Bicarbonate and alkalinity concentrations remained within historical ranges.

Quarry influence (BORR MW11):

- The pH range in 2025-2026 of 6.98 to 7.70 was slightly lower than the pre-construction historical pH range (7.2 to 7.9).
- Pre-construction groundwater electrical conductivity ranged up to 24,600 $\mu\text{S}/\text{cm}$. During the reporting period, salinity ranged between 1,900 to 28,600 $\mu\text{S}/\text{cm}$. The range in salinity reported during the reporting period is slightly higher than that measured during pre-construction. This is likely due to monitoring event timing with high rainfall events and initial flushing the higher salt laden sediments from adjacent farmland areas.

Table 4 Groundwater and surface water quality – Laboratory summary results

Parameter	ANZECC and AARMCANZ (2000) freshwater guidelines ¹ (mg/L)	Maximum during 2025/2026 ¹ (mg/L)	2025/26 exceedances	Pre-construction maximum (mg/L)	Pre-construction exceedances
Aluminium	0.055	10.7 (MB14s)	BORR MW06 BORR MW08a BORR MW10 BORR MW11 BORR MW46 MB11s MB14s	0.052	SW10
Cadmium	0.002	Nil	Nil	0.00025	Nil
Copper	0.0014	0.0850 (MB11s)	BORR MW11 BORR MW46 MB11s MB14s	0.052	BORR MW04 BORR MW05 BORR MW06 BORR MW08a BORR MW09 BORR MW10 BORR MW11 BORR MW46 MR MW05
Nickel	0.011	0.020 (BORRMW11)	BORR MW 06 BORR MW11 MB14s	0.041	BORR MW04 BORR MW05 BORR MW09 BORR MW11
Zinc	0.008	4.440 (MB14s)	BORR MW05 BORR MW11 MB11s MB14s	0.404	BORR MW05
Nitrogen	1.5	33.6 (BORR MW46)	BORR MW06 BORR MW08a BORR MW11 BORR MW46 MB11s MB14s	6.3	MR MW05 BORR MW05 BORR MW06 BORR MW08a BORR MW09 BORR MW11
Phosphorus	0.06	0.92 (BORR MW11)	BORR MW04 BORR MW05 BORR MW06 BORR MW08a BORR MW10 BORR MW11 BORR MW46 MB14s	1.22	MR MW05 BORR MW04 BORR MW05 BORR MW06 BORR MW08a BORR MW10 BORR MW11 BORR MW46
¹ Dissolved Metals guideline values assumed to allow assessment in context to groundwater					

- Prior to construction, bicarbonate concentrations were also high, ranging from 258 to 1,860 mg/L. During the 2025-2026 period bicarbonate ranged between 260 to 2,600 mg/L. This is an increase from the previous reporting period and the pre-construction levels.

Five Mile Brook: MU Wetland UFI-1163 (BORR MW08a): Five Mile Brook area: *Areas of known Black-stripe Minnow habitat.*

- The pH range in 2025-2026 of between 6.59 to 7.03 is only marginally lower than that of the pre-construction historical pH range of between 6.6 to 7.7.
- Groundwater electrical conductivity ranged between 526 to 1,100 $\mu\text{S}/\text{cm}$, is higher compared to the pre-construction range of between 168 to 779 $\mu\text{S}/\text{cm}$.
- Bicarbonate and alkalinity concentrations increased compared to historical ranges.

West of Ridgeline: RE Wetland UFI-15493 and CC Wetland UFI-14478 (BORR MW04, BORR MW05, BORR MW06, BORR MW46): western flank of the ridgeline and towards the ocean: *Areas of potential Black-Stripe Minnow habitat.*

- The pre-construction pH range was reported between 3.2 to 7.6. During this reporting period, the values range between 5.84 to 7.65, and are within the pre-construction range.
- Groundwater electrical conductivity ranged between 402 to 5,710 $\mu\text{S}/\text{cm}$, slightly higher than the pre-construction range of between 216 to 4,280 $\mu\text{S}/\text{cm}$. The slight increase may be explained by the increased rainfall following from a dry period.
- Bicarbonate and alkalinity concentrations remained within historical ranges, except for BORR MW46 which had slightly elevated concentrations over the reporting period.

5.2.2.2 Total metals

Aluminium, Copper, Nickel and Zinc exceeded reporting guidelines during the reporting period across multiple sampling sites as per Table 4. These observations were also exhibited during pre-construction baseline sampling and therefore indicate likely no change in water quality because of the Project activities. Overall metal concentrations are trending downwards. Possibly relating to the frequent pumping of bores decreasing their concentrations.

Exceedances are presented in Appendix C.

5.2.2.3 Nutrients

Concentrations of phosphorus (0.00 to 0.92 mg/L) were above the guidelines (0.06 mg/L) for the reporting period and within the historic range (Appendix C). The variability in concentration levels can likely be attributed to the variability in seasonal rainfall that results in first flush and inundation of widespread low-lying fertilised agricultural land.

A change in peak total nitrogen concentrations between a baseline maximum of 6.3 mg/L and the recent reporting period of 33.6 mg/L (BORR MW46) reported during the highly variable rainfall period (Appendix C).

5.2.2.4 Organic chemicals

Benzene, Toluene, Ethylbenzene, and Xylenes were not detected either pre-construction or during the 2025-2026 reporting period. During the reporting period, three total recoverable hydrocarbons were detected at sampling sites BORR MW04 (August 2025), BORR MW11 (May 2026), and MB14s (August 2025).

5.2.2.5 Surface water and groundwater quality summary

In context with the identified topographic zones, the following observations are apparent:

- **Eastern Agricultural Flats (BORR MW09, MB11s, BORR MW10)** is aligned with CC Wetland UFI-931 and RE Wetland UFI-1117 and located outside influence of the Gelorup quarry. The Superficial Aquifer in this area is at lower elevations linked to palusplain and shallow sediments overlying Bunbury Basalt and has been linked with areas of potential Black-stripe Minnow habitat. Groundwater quality measured during the 2025-2026 period trended towards the pre-construction ranges, likely a result of the increased rainfall which is closer to the amount experienced in the pre-construction phase.
- **Quarry influence (BORR MW11)** salinity fluctuated heavily with EC ranging from 1,210 to 28,600 $\mu\text{S}/\text{cm}$. This variation in EC is often due to high rains after a dry period.
- **Five Mile Brook (BORR MW08a)** is aligned with MU Wetland UFI-1163 and an area known as Black-stripe Minnow habitat. During the 2025-2026 reporting period, the groundwater chemistry has remained consistent with long term trends. Total Phosphorous are seen to exceed limits. However, rainfall and recharge are shown to have only a limited, short-term effect on some concentrations.
- **West of Ridgeline (BORR MW4, BORR MW05, BORR MW06, and BORR MW46)** is associated with RE Wetland UFI-15493 and CC Wetland UFI-14478 on the western flank of the ridgeline and towards the ocean. This includes a potential Black-stripe Minnow habitat area. BORR MW46, groundwater quality characteristics remain within historical ranges with some minor fluctuations possibly caused by the low rainfall recharge and very low rainfall during the 2025-2026 period.

6.0 Quality Assurance/ Quality Control

Laboratory QA/QC checks indicate results were within acceptable levels with all differences between the primary and duplicate within acceptable limits. This is considered to be acceptable as both primary and duplicate results are close to laboratory limit of reporting (LOR) and are low in concentrations (Appendix C).

Laboratory QA/QC was acceptable with all parameters within acceptable ranges except for:

- The laboratory measurements of pH were outside holding times for all sample and for Nitrite as N, Reactive Phosphorus and Dissolved Sulfide as S₂ in February 2026.
- This is considered to be acceptable as results are like other events and all other total metals parameters, including relative percentage difference for field duplicates are acceptable.

In summary, the laboratory data is considered suitable for assessing water quality trends.

7.0 Monitoring compliance

This monitoring review assesses the compliance with the Conditions 2-1(2) and Condition 2-3 of MS1191 and outlined in Section 2.2 and summarises the groundwater and surface water monitoring data for the 12-month reporting period from June 2025 to May 2026 in context with local baseline conditions. Monitoring compliance has been shaded and coded in accordance with Table 5.

Table 5 Summary of monitoring compliance abbreviations

Abbreviation	Compliance status	Comments
C	Compliant	More than 80% completed
PNC	Potentially non-compliant	60 to 80% completed
NC	Non-compliant	Less than 60% completed
D	Monitoring bore decommissioned/ impacted	
N/A	Monitoring location dry or no landowner access permitted	

Compliance of the scheduled monitoring for 2025-2026 reporting period is summarised in Table 6 and was measured against monitoring requirements specified in Table 2.

Table 6 Compliance of monitoring in the project southern section 2025-2026

Bore ID	2025-2026 monitoring bore data compliance											Notes
	Monthly static water level (mbgl; mAHD)	Quarterly field TDS (mg/L)	Quarterly field temperature (°C)	Quarterly field EC (mg/L)	Quarterly field Redox	Quarterly field dissolved oxygen (mg/L)	Quarterly field pH	Quarterly laboratory analysis				
								Aug-25	Nov-25	Feb-26	May-26	
Groundwater												
BORR MW04	C	C	C	C	C	C	C	C	C	C	C	
BORR MW05	C	C	C	C	C	C	C	C	C	C	C	
BORR MW06	C	C	C	C	C	C	C	C	C	C	C	
BORR MW07	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Minimal water in base of bore to allow sampling
BORR MW08a	C	C	C	C	C	C	C	C	C	C	C	
BORR MW09	D	D	D	D	D	D	D	D	D	D	D	Impacted by construction by September 2023
MB11s	C	C	C	C	C	C	C	C	C	C	C	Replacement for BORR MW09 water level monitoring
BORR MW10	C	C	C	C	C	C	C	C	C	C	C	
BORR MW11	C	C	C	C	C	C	C	C	C	C	C	
BORR MW12	D	D	D	D	D	D	D	D	D	D	D	Bore impacted by construction
BORR MW46	C	C	C	C	C	C	C	C	C	C	C	
MR MW05	D	D	D	D	D	D	D	D	D	D	D	Bore impacted by construction
BH27.1	D	D	D	D	D	D	D	D	D	D	D	Bore impacted by construction
MB14s	C	C	C	C	C	C	C	C	C	C	C	Replacement for BH27.1 water level monitoring. No field samples in August 2025 and no dissolved oxygen field sample in November 2025.
Surface water												
SW10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Dry

8.0 Recommendations

With the main project construction now completed, continued groundwater related monitoring linked to the post-construction period should continue to ensure compliance through the defects period.

9.0 Conclusions

Groundwater and surface water levels and quality have been monitored since 2019, prior to construction commencement and continued through the 2025-2026 reporting period. In context to construction related activities, key findings from monitoring during the 2025-2026 monitoring assessment include:

- Shallow water table levels continue to respond to varying degrees of seasonal rainfall recharge events.
- Groundwater levels linked to all geomorphic wetlands and TEC/PEC areas follow trends within or slightly higher than the historic ranges that are consistent with regional trends.
- The larger average seasonal groundwater level fluctuation in 2025-2026 can be attributed to seasonal rainfall and resulting recharge to the Superficial Aquifer.
- No surface water samples were collected for analysis.
- Three total recoverable hydrocarbons were detected at sampling sites BORR MW04 (August 2025), BORR MW11 (May 2026), and MB14s (August 2025).

Groundwater monitoring was completed in accordance with the outlined monitoring program. Replacement bores MB11s and MB14s are active and the results from these bores are presented within this report.

Based on the review, groundwater monitoring remains within historical ranges and no changes compared with baseline data as presented in *Bunbury Outer Ring Road, North, Central and Southern Section's Groundwater and Surface Water Monitoring 2019-2020* (SWGA, 2020) are attributed to the project.

Groundwater quality in the southern section remains stable and consistent with pre-construction conditions for the period June 2025 to May 2026. No evidence of construction-related contamination or significant deviation from baseline values is observed. Continued monitoring is recommended to confirm these trends.

It is concluded that Main Roads WA (MRWA) is compliant with Conditions 2-1(2), 2-3 and 2-4 of Ministerial Statement 1191 during the reporting period.

10.0 References

Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ), 2000, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*.

Australian Government 2019, *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*, available from: <https://www.waterquality.gov.au/anz-guidelines>.

Australian Government Initiative (AIG). 2000. Nickel in freshwater and marine water. Retrieved from Australian Government Initiative: [Nickel in freshwater and marine water \(waterquality.gov.au\)](https://www.waterquality.gov.au).

Australian Government Initiative (AIG). 2000. Zinc in freshwater and marine water. Retrieved from Australian Government Initiative: [Zinc in freshwater \(waterquality.gov.au\)](https://www.waterquality.gov.au).

Bunbury Outer Ring Road Integrated Planning Study (BORR IPT) 2020 *Groundwater and Surface Water Quality Monitoring 2019-20*.

BoM, 2026. Climate Statistics for Australian Locations - Bunbury. Retrieved from Bureau of Meteorology: http://www.bom.gov.au/climate/averages/tables/cw_009965.shtml. Accessed on 8 June 2026.

Commander, D. (1984). The Bunbury shallow drilling groundwater investigation: Western Australia. Geological Survey Professional Papers for 1982, 32-52.

DWER, 2023. Geographe Waterways. <https://rgw.dwer.wa.gov.au/geographe-waterways/five-mile-brook/>

Department of Water. (2009). Bunbury and Southwest Coastal Groundwater Areas subarea reference sheets. Perth: Government of Western Australia.

Department of Water 2012, *Leschenault Estuary Water Quality Improvement Plan*, Department of Water, Western Australia.

Government of Western Australia (GoWA). 2020. data.wa.gov.au. Retrieved from <https://data.wa.gov.au/>. Accessed on 11 July 2024

Hill, A. L., Semeniuk, C. A., Semeniuk, V., & del Marco, A., 1996. Wetlands of the Swan Coastal Plain, Volume 2: Wetland Mapping, Classification and Evaluation. Perth: Prepared for the Water and Rivers Commission and the Department of Environmental Protection, Western Australia.

Semeniuk, C.A., & Semeniuk, V., 1995. A Geomorphic Approach to Global Classification for Inland Wetlands. *Vegetation*, 118, 103-124.

SLR Consulting, 2024. *Annual Aquatic Fauna and Surface Water Report*.

Southwest Gateway Alliance (SWGA) 2021, *Bunbury Outer Ring Road, Southern Section Annual Groundwater and Hydrological Regime Report*, unpublished report to Environmental Protection Authority, August 2021.

Southwest Gateway Alliance (SWGA) 2024, *Bunbury Outer Ring Road, Southern Section Annual Groundwater and Hydrological Regime Report*, unpublished report to Environmental Protection Authority, August 2024.

Southwest Gateway Alliance (SWGA) 2025, *Bunbury Outer Ring Road, Southern Section Annual Groundwater and Hydrological Regime Report*, unpublished report to Environmental Protection Authority, July 2025.

Southwest Gateway Alliance (SWGA) 2025, *Bunbury Outer Ring Road, IS Design Eco-1 Ecology Assessment*, unpublished report to Environmental Protection Authority, August 2024.

Appendix A

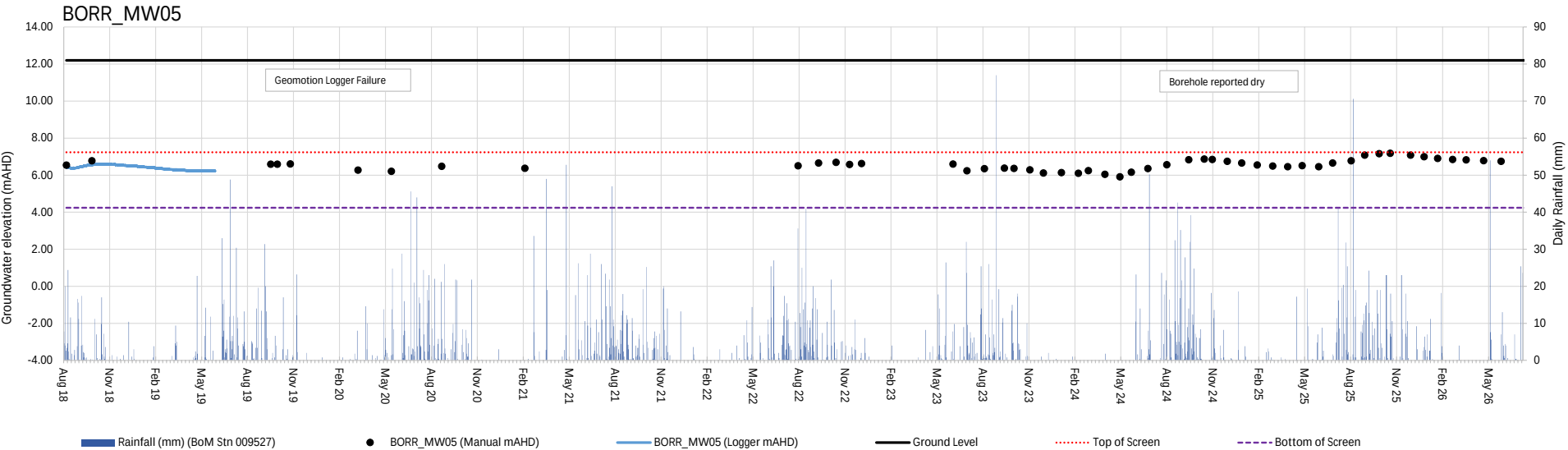
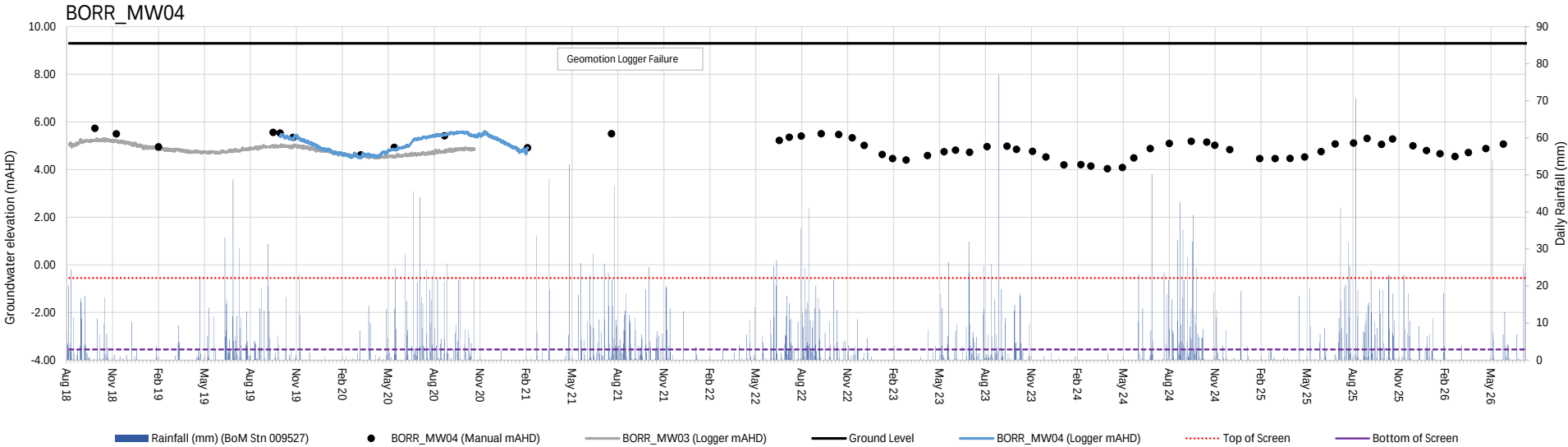
Bore summary details

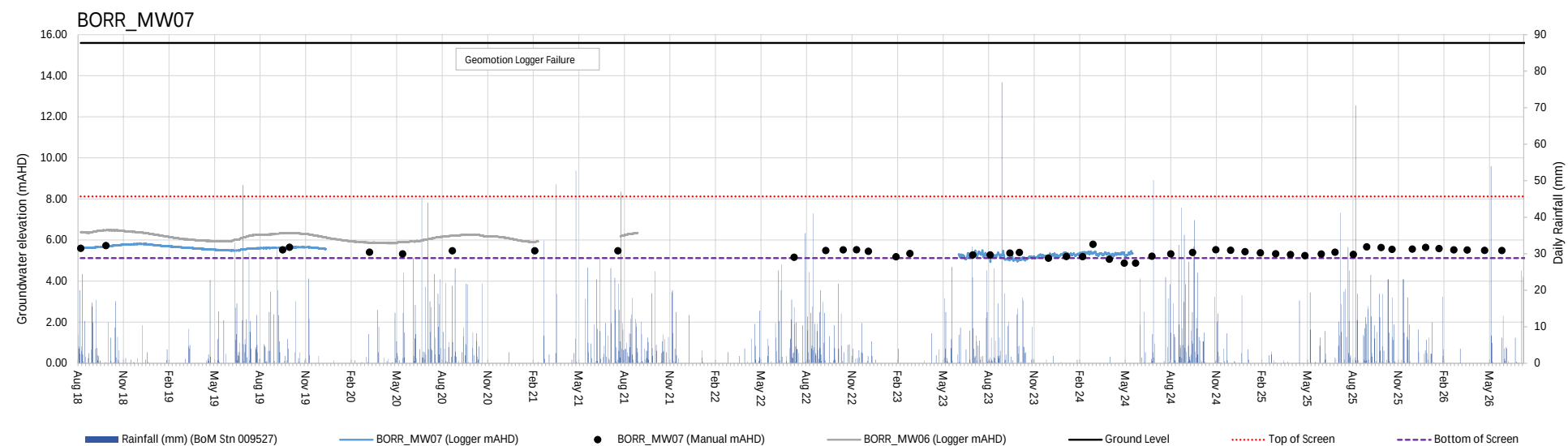
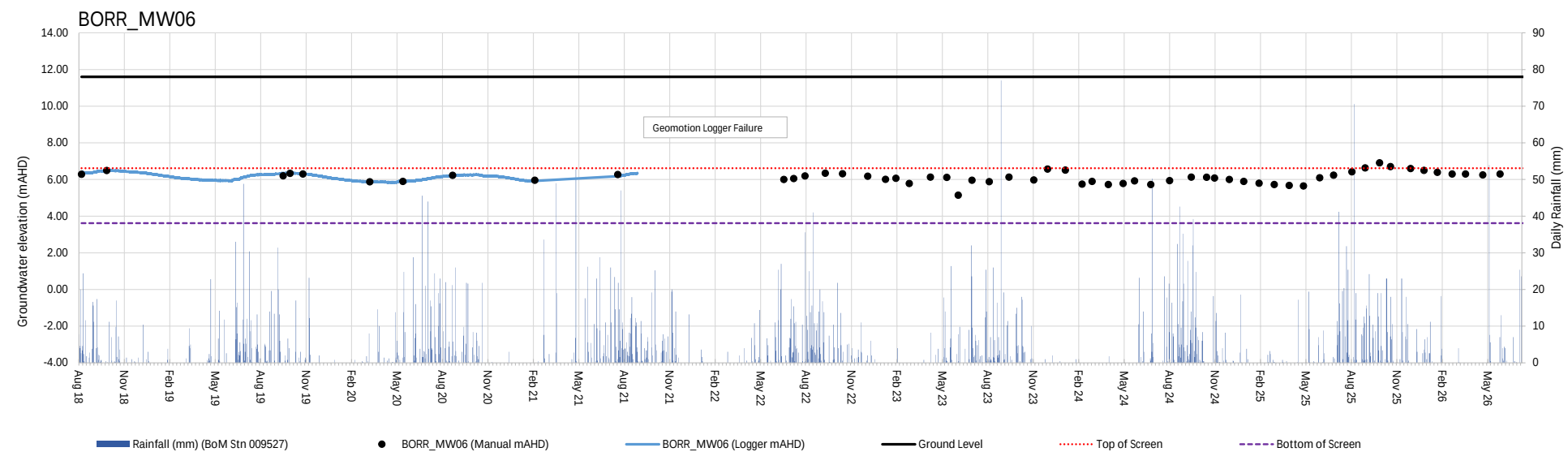
App A - Monitoring Bore Construction Details

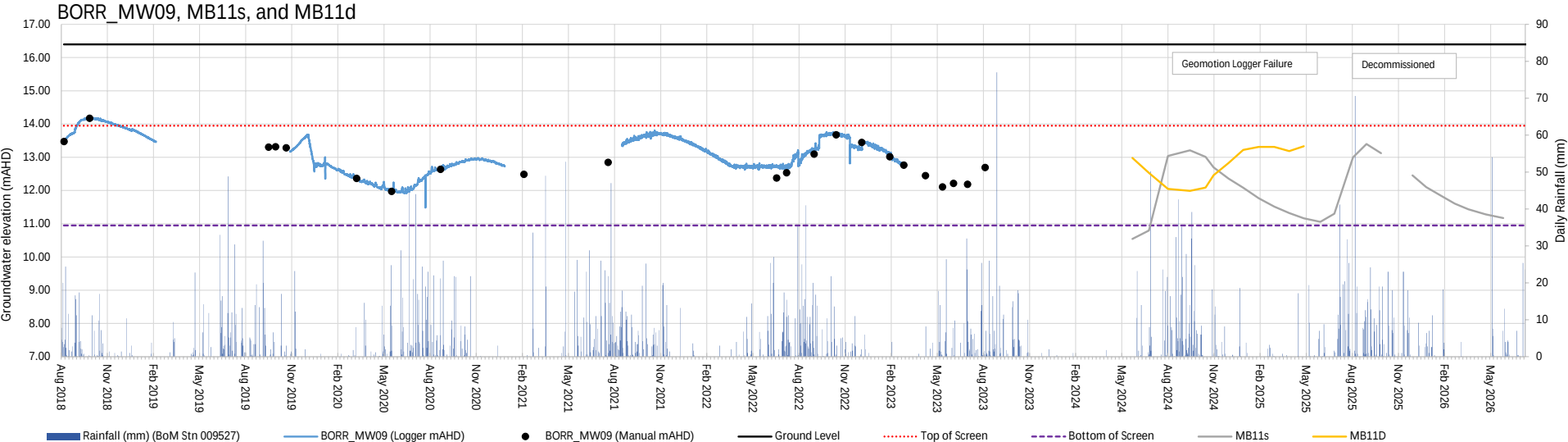
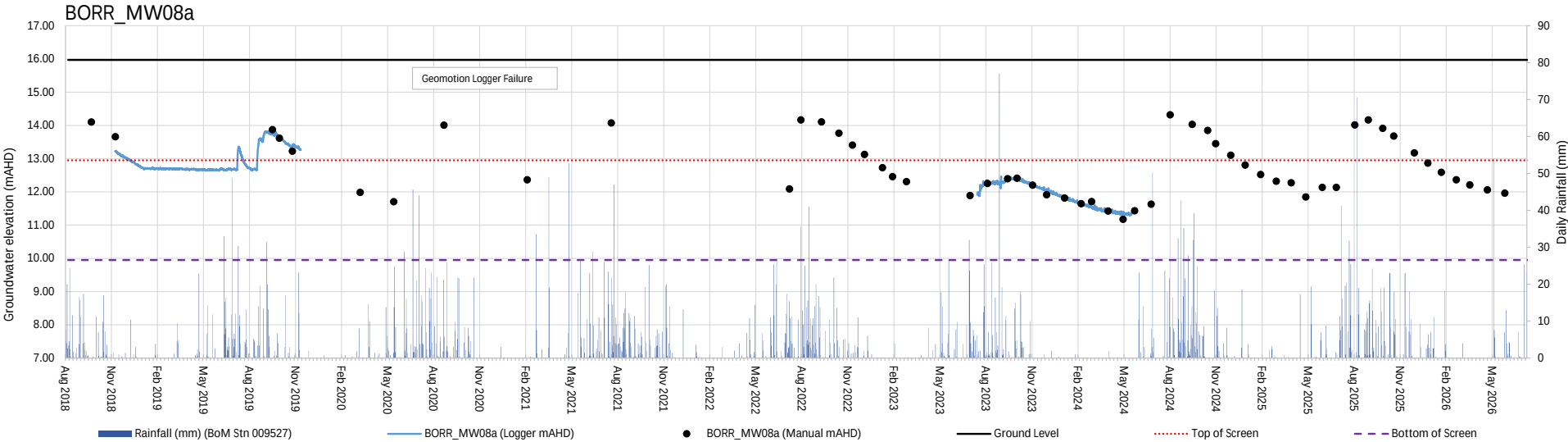
Bore_ID	River locality	Location				Ground level (mAHD)	Top of Collar (mAHD)	Depth drilled	Casing details	Screened interval		Seasonal low GWL (mbgl)	Seasonal low GWL (mAHD)	DGWL (mAHD)	Comments
		Easting (PCG94)	Northing (PCG94)	Easting (MGA94, Z50)	Northing (MGA94, Z50)					From (mbgl)	To (mbgl)				
Groundwater															
BORR_MW04	South of Five Mile Brook	30,098	96,440	370,118	6,297,058	9.30	9.45	13	Nominal 50mm ID uPVC class 9 Casing	10	13	4.68	4.62	NA	-
BORR_MW05	South of Five Mile Brook	30,660	97,684	370,681	6,298,315	12.20	12.24	8		5	8	6	6.2	7.2	-
BORR_MW06	South of Five Mile Brook	31,097	98,436	371,109	6,299,072	11.60	11.62	8		5	8	5.76	5.84	6.92	-
BORR_MW07	South of Five Mile Brook	32,079	99,497	372,079	6,300,144	15.60	15.62	10.5		7.5	10.5	10.12	5.48	6.25	-
BORR_MW08a	South of Five Mile Brook	33,592	99,726	373,589	6,300,390	15.97	15.95	6		3	6	3.33	12.64	14.53	-
BORR_MW09	Preston Rv to Five Mile Brook	34,250	100,342	374,240	6,301,013	16.40	16.45	5.5		2.5	5.5	4.91	11.49	14.62	Decommissioned
BORR_MW10	Preston Rv to Five Mile Brook	34,870	101,074	374,851	6,301,752	19.30	19.35	4.4		0.5	4.4	2.27	17.03	18.97	-
BORR_MW11	Preston Rv to Five Mile Brook	35,310	101,916	375,282	6,302,599	20.80	20.80	4.4		0.5	4.4	3.89	16.91	20.8	-
BORR_MW12	Preston Rv to Five Mile Brook	35,899	103,498	375,853	6,304,187	19.60	19.63	4.5		1.5	4.5	3.46	16.14	18.96	Decommissioned
BORR_MW46	Five Mile Brook - West	33,939	104,427	373,883	6,305,094	7.10	7.03	6		3	6	4.74	2.36	4.07	-
MR_MW05	South of Five Mile Brook	35,337	101,506	375,313	6,302,189	20.54	20.63	-		-	-	-	-	19.64	Decommissioned
BH27.1	Five Mile Brook - West	31,413	98,949	371,426	6,299,584	12.30	12.30	9		6	9	-	-	6.74	Decommissioned
MB11s	South of Five Mile Brook	33,627	99,849	374,128	6,302,416	16.35	16.24	15.15		13.15	15.15	NA	NA	NA	Replacement for BORR_MW9
MB11d								60		42	60				
MB14s	Preston Rv to Five Mile Brook	31,552	99,007	371,558	6,299,648	14.83	14.85	14.55		7.55	14.55	NA	NA	NA	Replacement for BH27.1
MB14d								60.5		42.5	60.5				
Surface water															
SW10	Five Mile Brook	33,341	99,834	373,337	6,300,496		NA	NA	NA	NA	NA	NA	NA	NA	Surface water sampling location

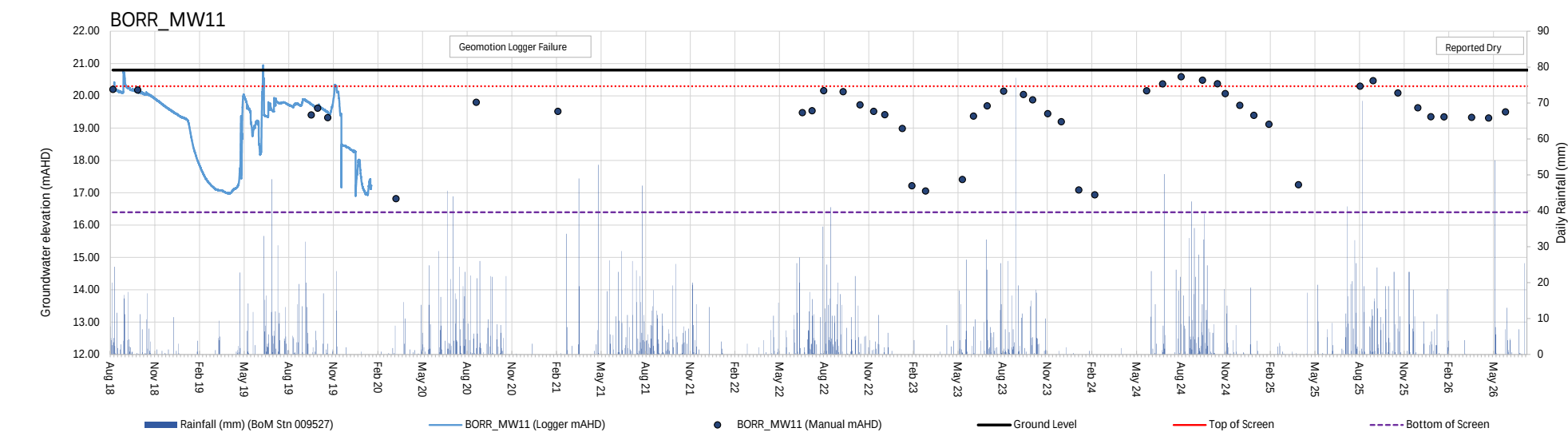
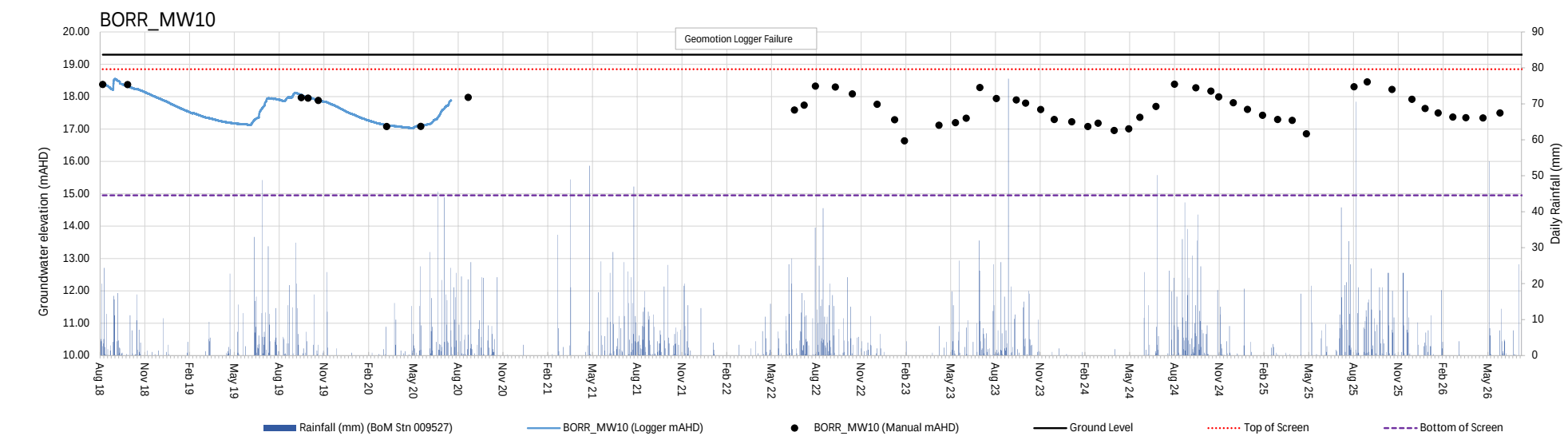
Appendix B

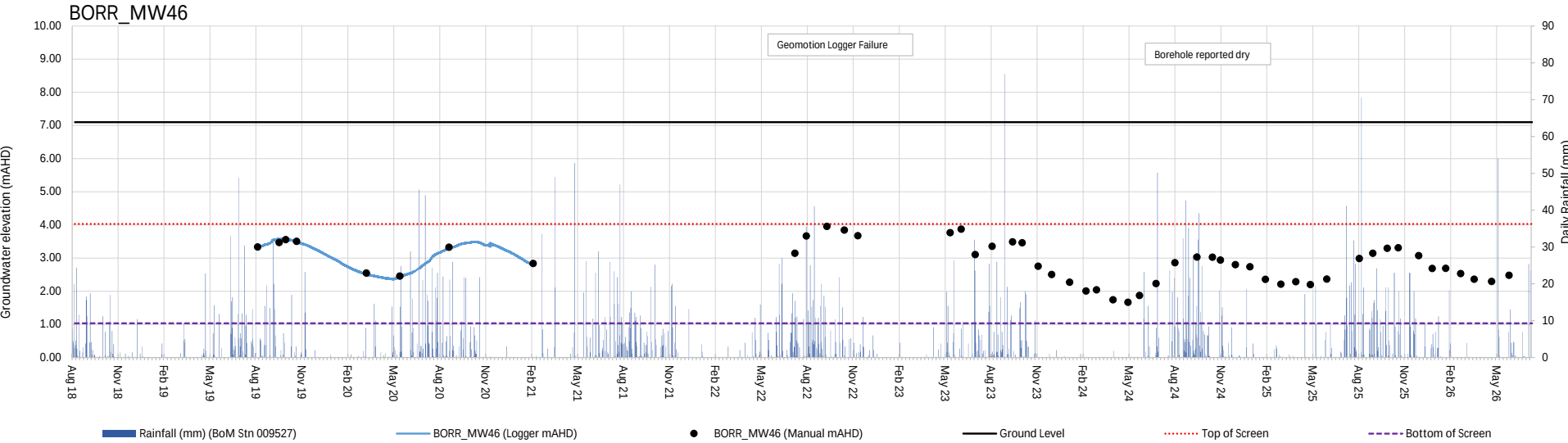
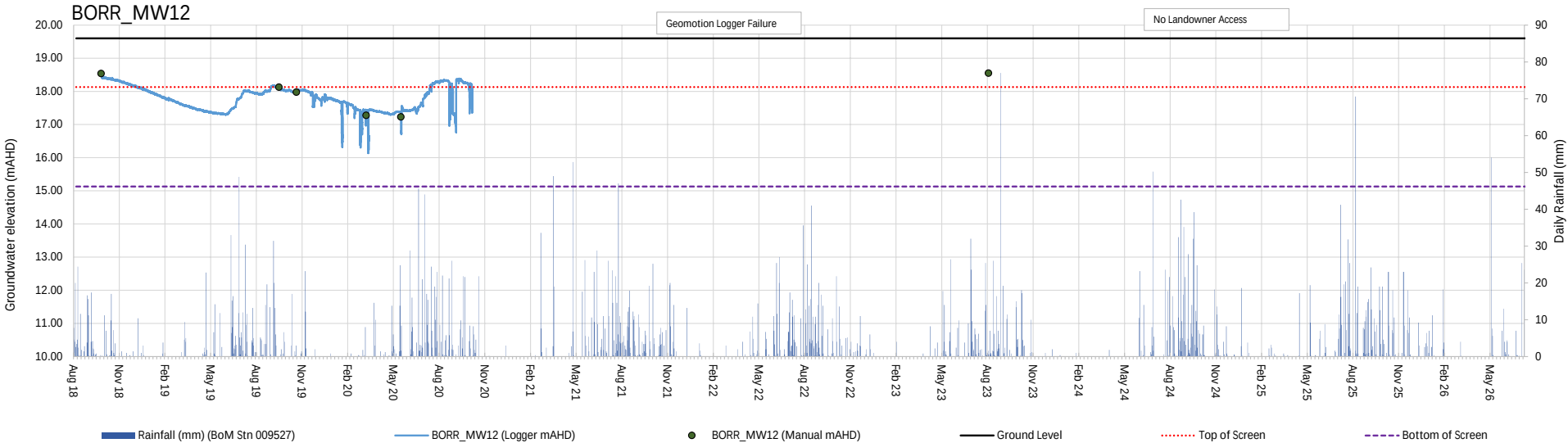
Groundwater level data

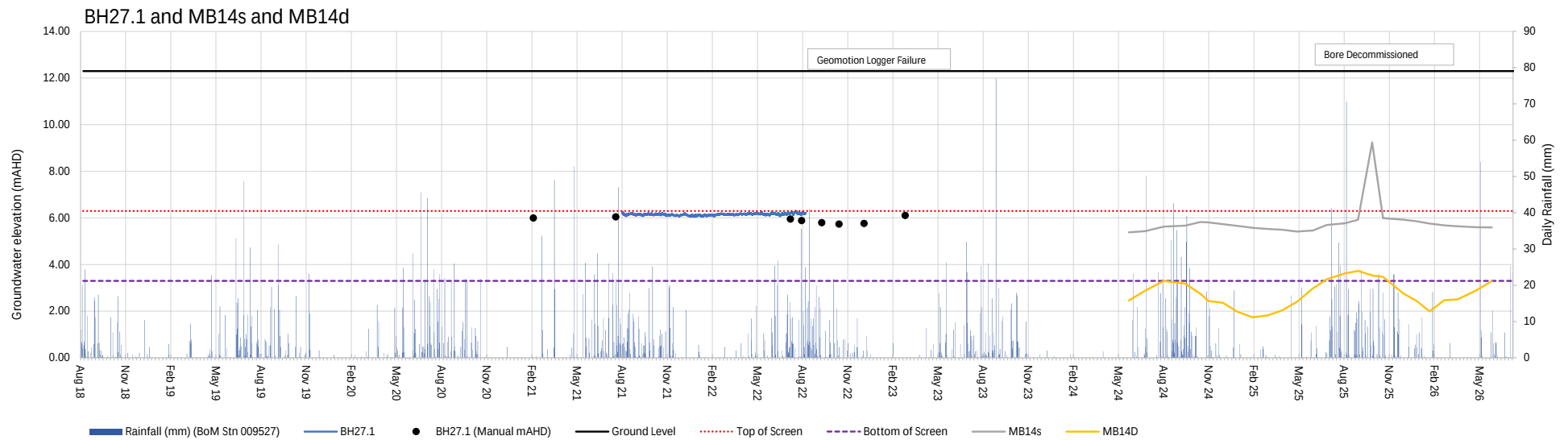
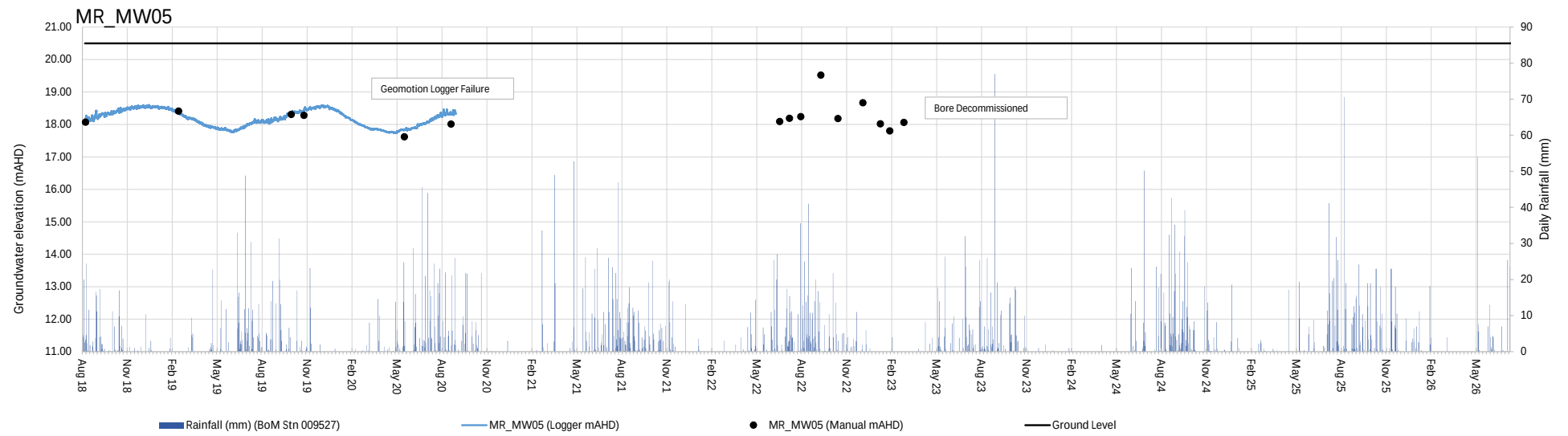






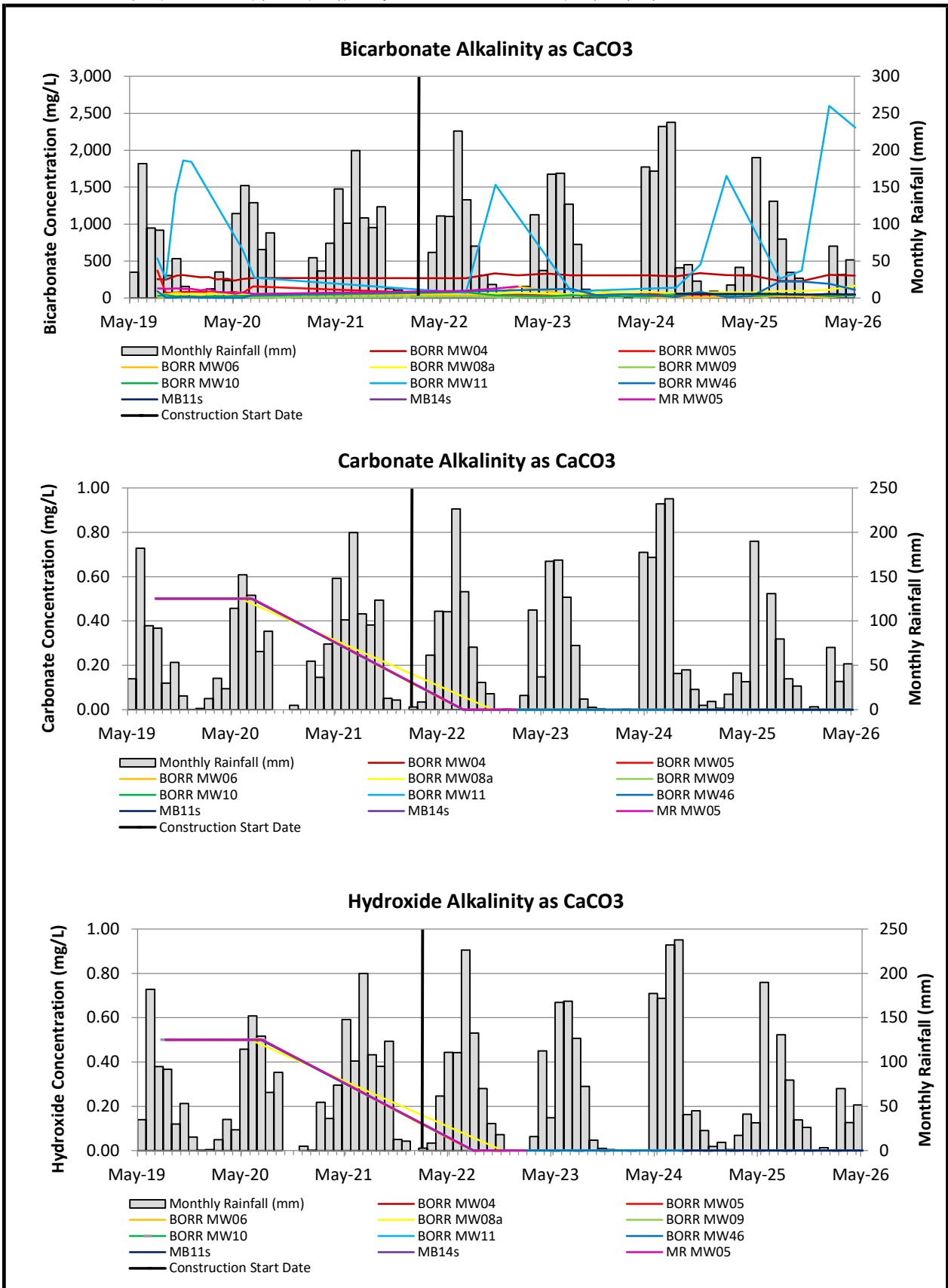




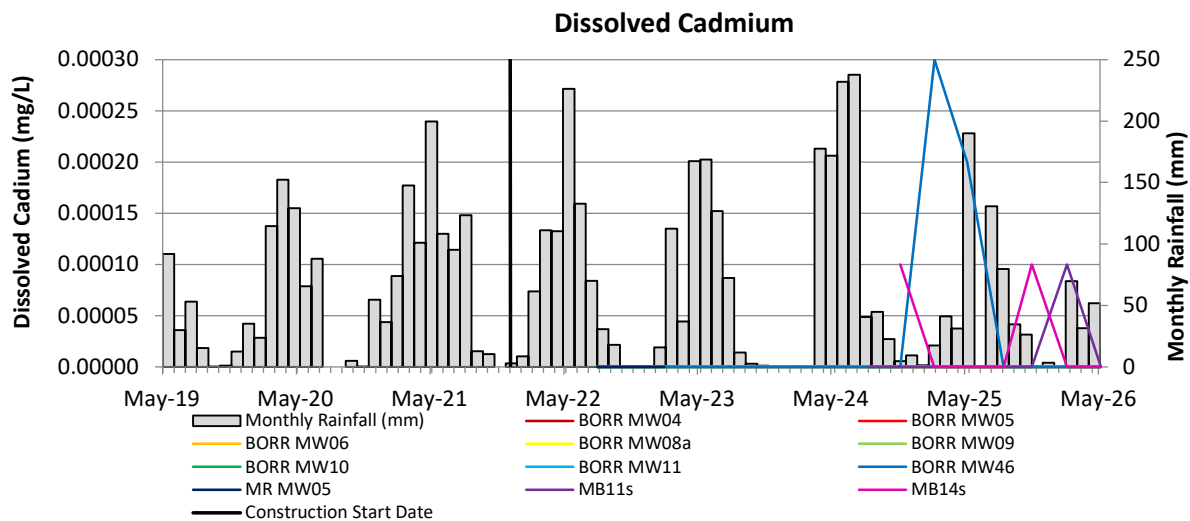
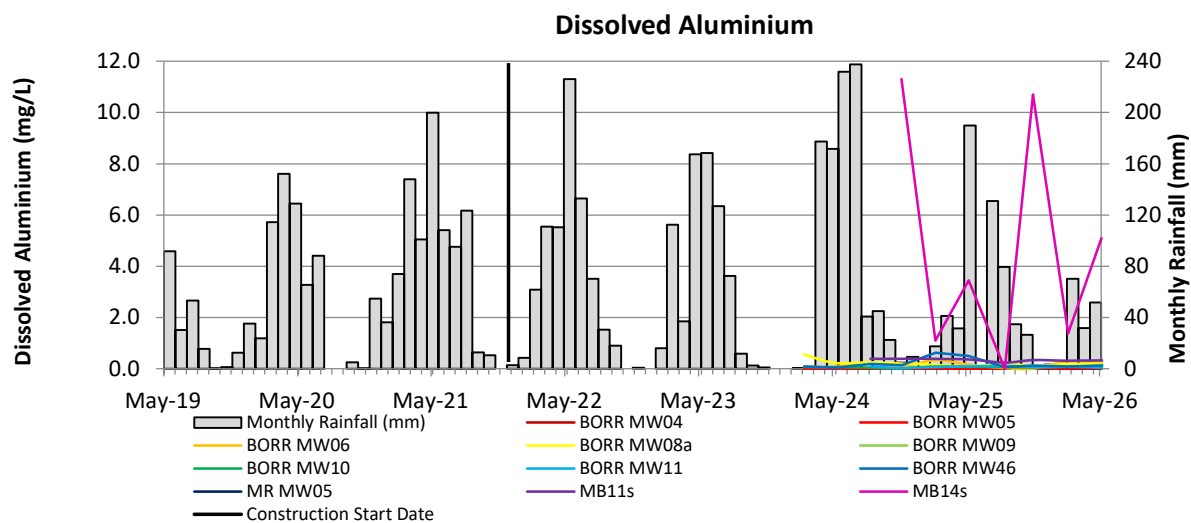
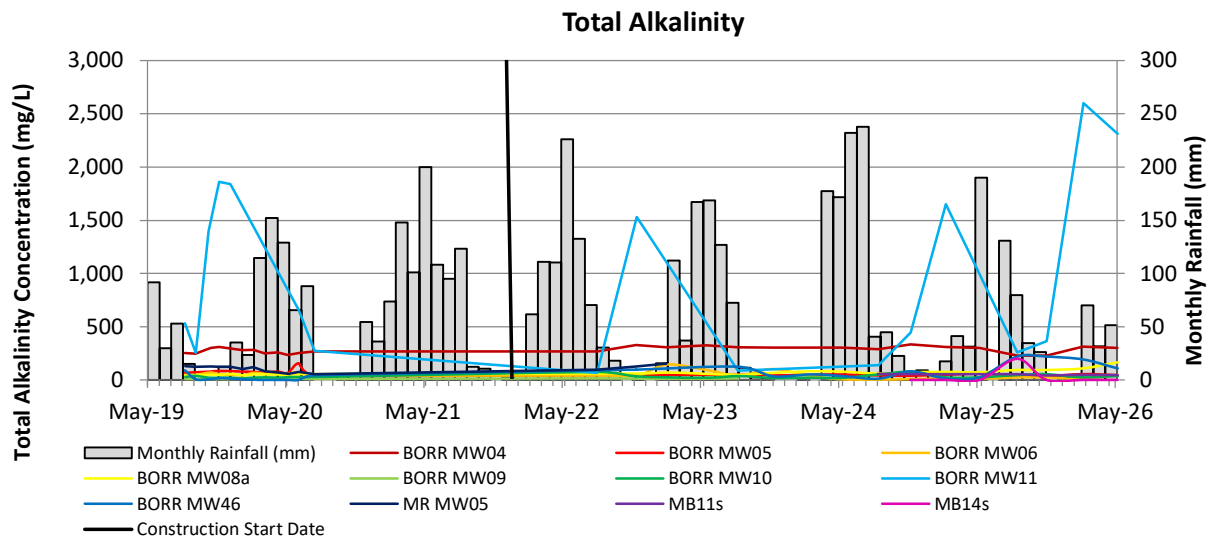


Appendix C

Groundwater quality data



PROJECT ID: 60644386 CREATED BY: JS APPROVED BY: GRB LAST MODIFIED: 22-06-26	Southern Section Groundwater Monitoring Review - to May 2026	CONCENTRATION OF BICARBONATE ALKALINITY, CARBONATE ALKALINITY AND HYDROXIDE ALKALINITY
South West Gateway Alliance Delivering the Bunbury Outer Ring Road		

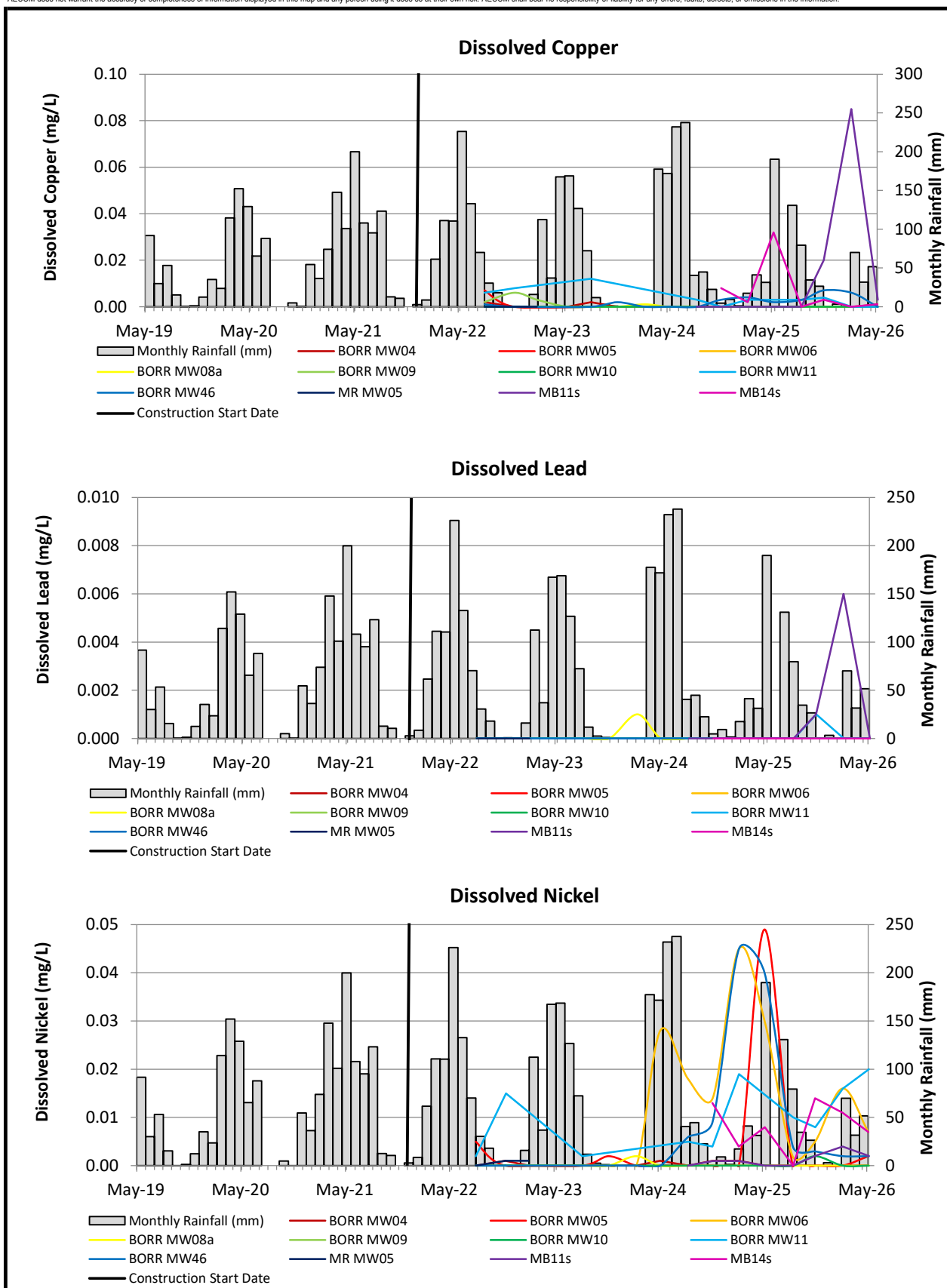


PROJECT ID: 60644386
 CREATED BY: JS
 APPROVED BY: GRB
 LAST MODIFIED: 22-06-26



**Southern Section
 Groundwater Monitoring Review - to May
 2026**

**CONCENTRATION OF DISSOLVED
 ALKALINITY, DISSOLVED
 ALUMINIUM AND DISSOLVED
 CADMIUM**

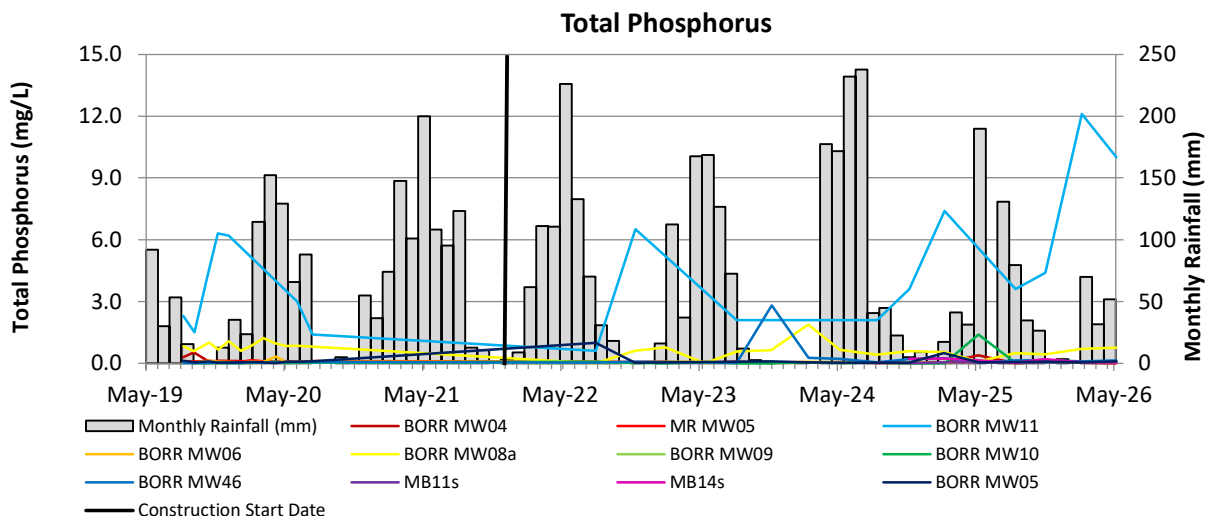
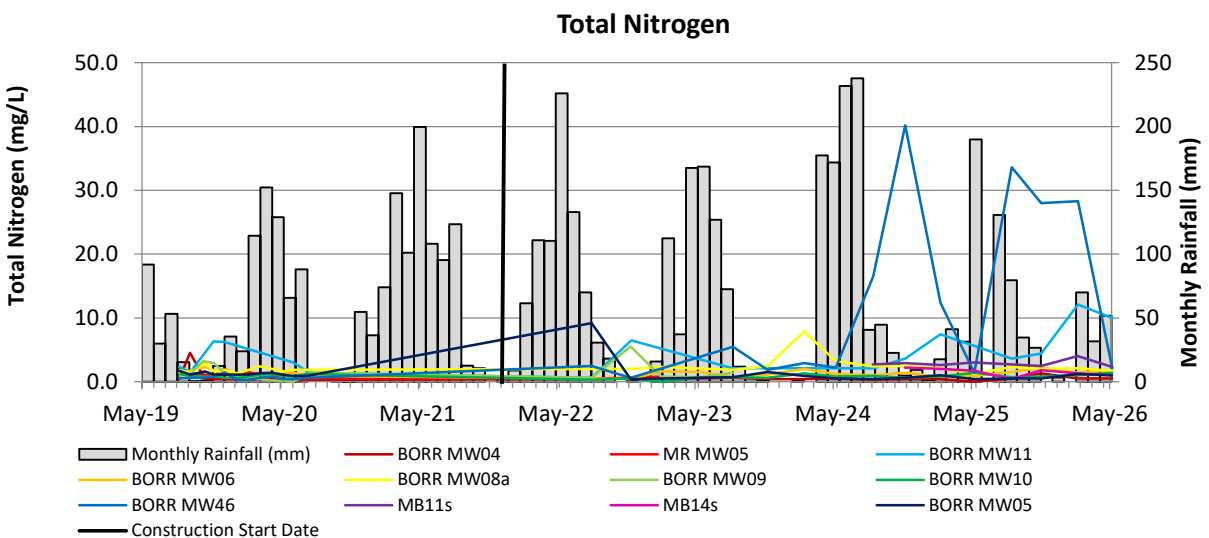
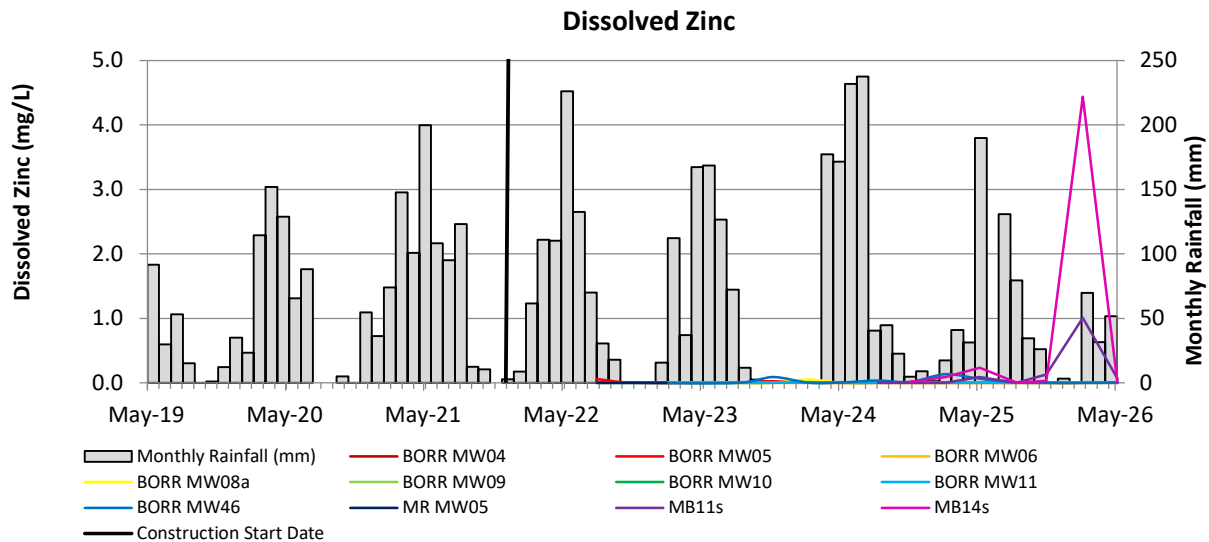


PROJECT ID 60644386
 CREATED BY JS
 APPROVED BY GRB
 LAST MODIFIED 22-06-26



Southern Section
Groundwater Monitoring Review - to May
2026

DISSOLVED COPPER, DISSOLVED
LEAD AND DISSOLVED NICKEL

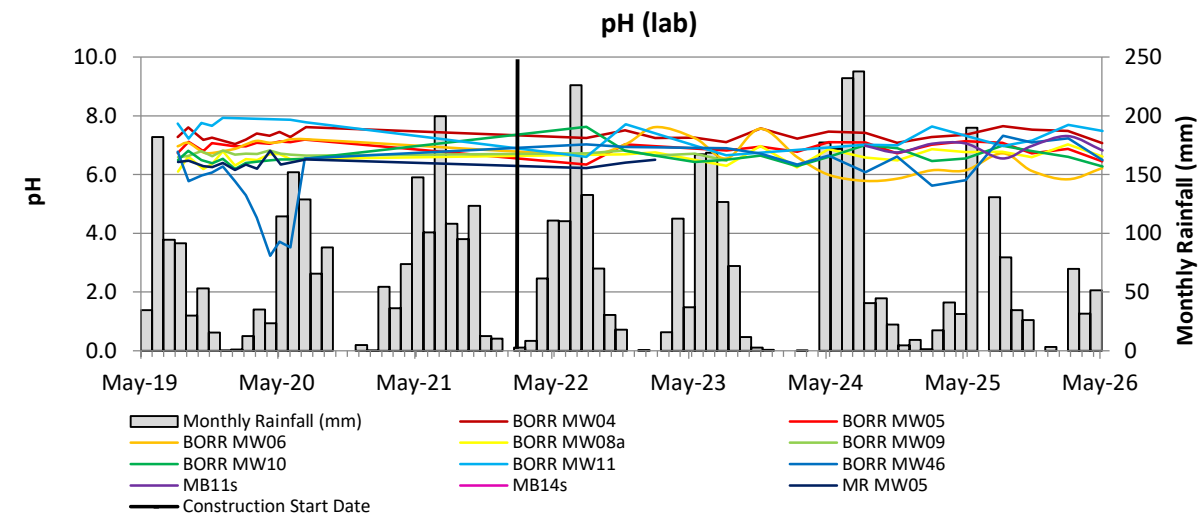
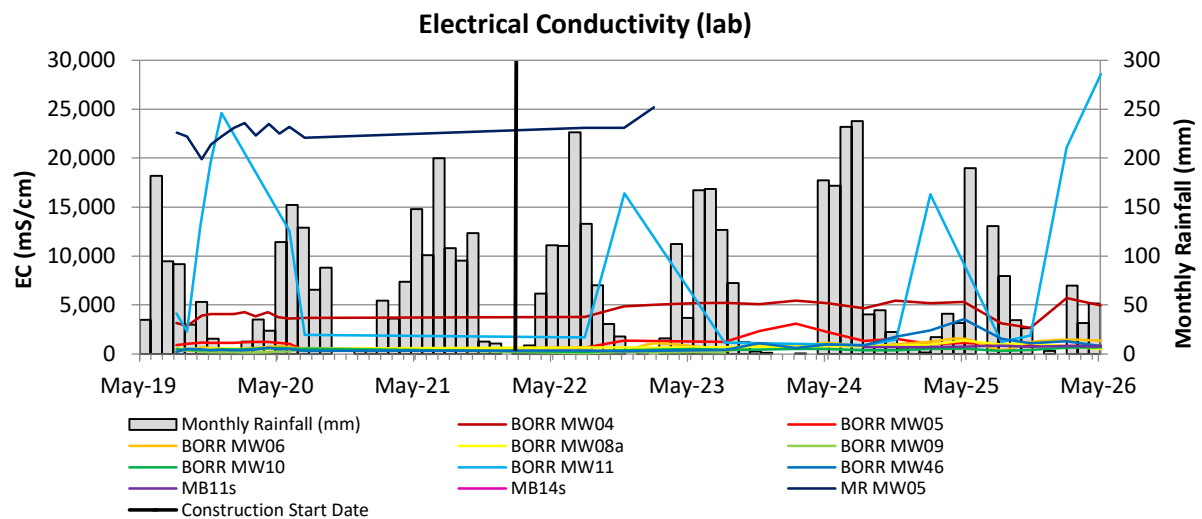
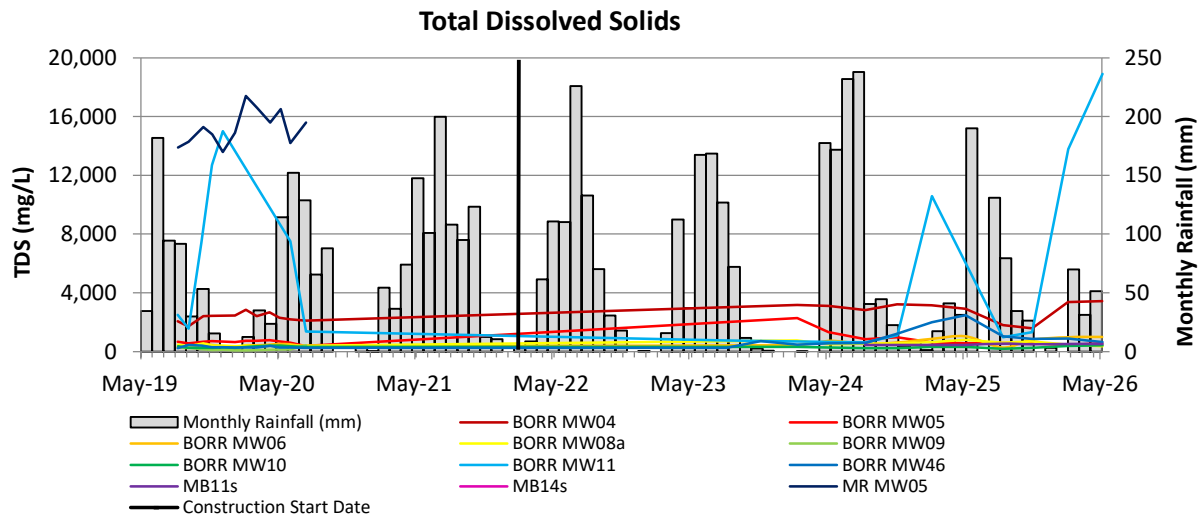


PROJECT ID: 60644386
 CREATED BY: JS
 APPROVED BY: GRB
 LAST MODIFIED: 22-06-26



**Southern Section
 Groundwater Monitoring Review - to May
 2026**

**DISSOLVED ZINC, TOTAL NITROGEN
 AND TOTAL PHOSPHORUS**



PROJECT ID: 60644386
 CREATED BY: JS
 APPROVED BY: GRB
 LAST MODIFIED: 22-06-26



**Southern Section
 Groundwater Monitoring Review - to May
 2026**

**TOTAL DISSOLVED SOLIDS,
 ELECTRICAL CONDUCTIVITY AND
 PH**

Appendix D

Laboratory certificates



CERTIFICATE OF ANALYSIS

Work Order	: EP2513564	Page	: 1 of 27
Client	: AECOM AUSTRALIA PTY LTD	Laboratory	: Environmental Division Perth
Contact	: Stephen Baron	Contact	: Natalie Duncan
Address	: LEVEL 15 58 Mounts Bay Road PERTH WA, AUSTRALIA	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: Borr 60644386	Date Samples Received	: 22-Aug-2025 11:50
Order number	: 60644386	Date Analysis Commenced	: 22-Aug-2025
C-O-C number	: 87192	Issue Date	: 01-Sep-2025 17:13
Sampler	: Stephen Baron		
Site	: BORR quarterly borr		
Quote number	: EP/675/21_V7		
No. of samples received	: 18		
No. of samples analysed	: 18		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
Efua Wilson	Metals Chemist	Perth Inorganics, Wangara, WA
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA
Niamh Carthew	Inorganic Chemist	Perth Inorganics, Wangara, WA



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H⁺ to the Cations and Nitrate, SiO₂ and Fluoride to the Anions.
- ED041G (Turbidimetric Sulphate): LOR raised for sample #22 due to possible sample matrix interference.
- EP080: Poor matrix spike recovery for QC sample due to suspected matrix effects and interferences. Confirmed by re-analysis.
- EA010-P (Conductivity): Sample EP2513564-16 positive result confirmed by re-analysis.
- ED041G (Turbidimetric Sulphate): LOR raised for sample #6, 9, 15, 20 and 23 due to possible sample matrix interference.
- EK057G (Nitrite): LOR raised for sample #11 due to possible sample matrix interference.
- ED093, EG020: It is recognised that total Ca, K, Cu concentrations are less than dissolved for sample EP2513564-023. However, the difference is within experimental variation of the methods.
- EG020F: High Fe result for sample EP2513564-011 has been confirmed by re-preparation and re-analysis.
- TDS by method EA-015 may bias high for sample #9, 11, 20 and 23 due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper.
- Ionic Balance out of acceptable limits for sample #9 and 20 due to analytes not quantified in this report.
- EK055G-NH4: In the absence of available field data (pH and temperature), ammonium was calculated using the lab standard values. Please scrutinise accordingly. NATA accreditation does not cover this service.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW-4	MW-5	MW-6	MW-7	MW-8a
Sampling date / time				20-Aug-2025 15:51	20-Aug-2025 12:55	20-Aug-2025 14:39	20-Aug-2025 15:03	20-Aug-2025 16:24
Compound	CAS Number	LOR	Unit	EP2513564-004	EP2513564-005	EP2513564-006	EP2513564-007	EP2513564-008
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.65	7.09	6.73	6.54	6.77
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	3120	963	402	1780	978
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	1820	601	284	1110	614
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	231	36	24	19	95
Total Alkalinity as CaCO3	----	1	mg/L	231	36	24	19	95
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	128	206	51	180	8
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	800	134	59	455	238
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.21	0.04	0.10	0.04	0.38
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	0.20	0.04	0.10	0.04	0.38
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.02	0.10	0.70	0.04	<0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.02	0.10	0.70	0.04	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.5	0.4	0.8	0.7	2.3
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	0.5	0.5	1.5	0.7	2.3



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW-4	MW-5	MW-6	MW-7	MW-8a
Sampling date / time				20-Aug-2025 15:51	20-Aug-2025 12:55	20-Aug-2025 14:39	20-Aug-2025 15:03	20-Aug-2025 16:24
Compound	CAS Number	LOR	Unit	EP2513564-004	EP2513564-005	EP2513564-006	EP2513564-007	EP2513564-008
				Result	Result	Result	Result	Result
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.03	0.05	0.09	0.15	0.49
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.01	<0.01	<0.01	0.49
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	<0.1	<0.1	3.0
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	29.8	8.79	3.20	17.0	8.78
ø Total Cations	----	0.01	meq/L	28.8	9.42	3.20	15.7	9.03
ø Ionic Balance	----	0.01	%	1.71	3.50	0.15	3.85	1.42
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	100	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	100	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L	110	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	110	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	110	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW-4	MW-5	MW-6	MW-7	MW-8a
Sampling date / time				20-Aug-2025 15:51	20-Aug-2025 12:55	20-Aug-2025 14:39	20-Aug-2025 15:03	20-Aug-2025 16:24
Compound	CAS Number	LOR	Unit	EP2513564-004	EP2513564-005	EP2513564-006	EP2513564-007	EP2513564-008
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	29	10	16	18	90
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	86.7	91.7	87.0	88.7	85.2
Toluene-D8	2037-26-5	2	%	91.0	91.2	91.9	91.2	91.8
4-Bromofluorobenzene	460-00-4	2	%	123	92.1	90.7	120	95.2



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID				MW-27	MW-10	MW-11	MB14s	MW-15
Sampling date / time				21-Aug-2025 14:36	20-Aug-2025 13:56	21-Aug-2025 09:24	20-Aug-2025 12:09	21-Aug-2025 10:36
Compound	CAS Number	LOR	Unit	EP2513564-009	EP2513564-010	EP2513564-011	EP2513564-014	EP2513564-015
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	4.37	6.99	6.98	7.60	6.74
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	188	324	1210	1370	698
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	210	208	978	756	464
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	47	260	200	55
Total Alkalinity as CaCO3	----	1	mg/L	<1	47	260	200	55
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<20	27	3	<1	<20
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	38	49	223	334	161
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.05	0.14	<0.01	0.16	2.18
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	0.05	0.14	<0.01	0.16	2.17
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.02	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.15	0.03	<0.02	0.02	2.30
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.15	0.03	<0.01	0.02	2.30
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.4	0.7	3.6	0.4	4.8
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	1.6	0.7	3.6	0.4	7.1



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID				MW-27	MW-10	MW-11	MB14s	MW-15
Sampling date / time				21-Aug-2025 14:36	20-Aug-2025 13:56	21-Aug-2025 09:24	20-Aug-2025 12:09	21-Aug-2025 10:36
Compound	CAS Number	LOR	Unit	EP2513564-009	EP2513564-010	EP2513564-011	EP2513564-014	EP2513564-015
				Result	Result	Result	Result	Result
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.04	0.01	0.92	0.13	0.06
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	<0.01	0.74	0.03	<0.01
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.1	0.2	<0.1
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	1.07	2.88	11.5	13.4	5.64
ø Total Cations	----	0.01	meq/L	1.51	3.11	11.4	13.1	6.15
ø Ionic Balance	----	0.01	%	17.0	3.73	0.48	1.04	4.29
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	70	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	70	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	70	<20
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW-27	MW-10	MW-11	MB14s	MW-15
Sampling date / time				21-Aug-2025 14:36	20-Aug-2025 13:56	21-Aug-2025 09:24	20-Aug-2025 12:09	21-Aug-2025 10:36
Compound	CAS Number	LOR	Unit	EP2513564-009	EP2513564-010	EP2513564-011	EP2513564-014	EP2513564-015
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP204: Glyphosate and AMPA								
Glyphosate	1071-83-6	10	µg/L	----	----	----	<10	----
AMPA	1066-51-9	10	µg/L	----	----	----	<10	----
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	33	25	68	33	47
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	85.2	94.1	114	108	86.1
Toluene-D8	2037-26-5	2	%	90.2	89.8	92.1	91.0	90.8
4-Bromofluorobenzene	460-00-4	2	%	90.5	90.8	92.8	93.1	121



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				Wa02	MW-46	Wa01	MW-31	MW-25
Sampling date / time				21-Aug-2025 13:49	21-Aug-2025 13:03	21-Aug-2025 11:26	21-Aug-2025 12:13	21-Aug-2025 11:18
Compound	CAS Number	LOR	Unit	EP2513564-016	EP2513564-018	EP2513564-019	EP2513564-020	EP2513564-021
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	5.87	7.32	6.27	5.01	6.23
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	2	1550	4380	248	4370
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	<10	1050	2510	221	2460
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	220	30	<1	26
Total Alkalinity as CaCO3	----	1	mg/L	<1	220	30	<1	26
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	219	75	<20	75
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	<1	150	1310	51	1300
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.25	0.08	0.05	0.10
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	<0.01	0.25	0.08	0.05	0.10
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	0.54	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	27.5	<0.01	1.67	<0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	28.0	<0.01	1.67	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	<0.1	5.6	0.3	1.6	0.4
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	<0.1	33.6	0.3	3.3	0.4

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	Wa02	MW-46	Wa01	MW-31	MW-25
Sampling date / time				21-Aug-2025 13:49	21-Aug-2025 13:03	21-Aug-2025 11:26	21-Aug-2025 12:13	21-Aug-2025 11:18	
Compound	CAS Number	LOR	Unit	EP2513564-016	EP2513564-018	EP2513564-019	EP2513564-020	EP2513564-021	
				Result	Result	Result	Result	Result	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	<0.01	0.13	0.04	0.11	0.05	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	0.01	<0.01	<0.01	
EK085M: Sulfide as S2-									
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.1	<0.1	<0.1	
EN055: Ionic Balance									
Ø Total Anions	----	0.01	meq/L	----	15.2	----	----	----	
Ø Total Anions	----	0.01	meq/L	<0.01	----	39.1	1.44	38.8	
Ø Total Cations	----	0.01	meq/L	<0.01	15.5	38.1	2.28	37.4	
Ø Ionic Balance	----	0.01	%	<0.01	0.97	----	----	----	
Ø Ionic Balance	----	0.01	%	----	----	1.27	22.6	1.72	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20	
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50	
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20	
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100	
EP080: BTEXN									



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				Wa02	MW-46	Wa01	MW-31	MW-25
Sampling date / time				21-Aug-2025 13:49	21-Aug-2025 13:03	21-Aug-2025 11:26	21-Aug-2025 12:13	21-Aug-2025 11:18
Compound	CAS Number	LOR	Unit	EP2513564-016	EP2513564-018	EP2513564-019	EP2513564-020	EP2513564-021
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	-----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	-----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	-----	1	mg/L	2	33	90	32	56
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	90.2	102	96.9	90.3	82.3
Toluene-D8	2037-26-5	2	%	91.8	89.8	90.2	92.0	89.2
4-Bromofluorobenzene	460-00-4	2	%	94.2	92.7	93.4	93.8	90.2



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MB11s	----	----	----	----
Sampling date / time				20-Aug-2025 16:57	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2513564-022	-----	-----	-----	-----
Result				-----	-----	-----	-----	-----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.55	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	830	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	555	----	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	54	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	54	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<25	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	232	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.73	----	----	----	----
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	0.73	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	2.7	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	2.7	----	----	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MB11s	----	----	----	----
Sampling date / time				20-Aug-2025 16:57	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2513564-022	-----	-----	-----	-----
Result				----	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.02	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	----	----	----	----
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	9.4	----	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	7.62	----	----	----	----
ø Total Cations	----	0.01	meq/L	7.60	----	----	----	----
ø Ionic Balance	----	0.01	%	0.18	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MB11s	----	----	----	----
Sampling date / time				20-Aug-2025 16:57	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2513564-022	-----	-----	-----	-----
				Result	----	----	----	----
EP080: BTEXN - Continued								
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	23	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	94.6	----	----	----	----
Toluene-D8	2037-26-5	2	%	88.9	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	93.2	----	----	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				MW-4	MW-5	MW-6	MW-7	MW-8a
Sampling date / time				20-Aug-2025 15:51	20-Aug-2025 12:55	20-Aug-2025 14:39	20-Aug-2025 15:03	20-Aug-2025 16:24
Compound	CAS Number	LOR	Unit	EP2513564-004	EP2513564-005	EP2513564-006	EP2513564-007	EP2513564-008
				Result	Result	Result	Result	Result
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	135	48	20	52	32
Magnesium	7439-95-4	1	mg/L	44	27	7	32	23
Sodium	7440-23-5	1	mg/L	422	107	32	232	118
Potassium	7440-09-7	1	mg/L	5	6	9	15	16
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	0.01	0.02	<0.01	0.19
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.002	0.002	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	0.011	<0.005
Manganese	7439-96-5	0.001	mg/L	0.093	0.010	0.091	0.015	0.094
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	7439-89-6	0.05	mg/L	0.07	0.16	0.07	<0.05	2.66



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				MW-27	MW-10	MW-11	MB14s	MW-15
Sampling date / time				21-Aug-2025 14:36	20-Aug-2025 13:56	21-Aug-2025 09:24	20-Aug-2025 12:09	21-Aug-2025 10:36
Compound	CAS Number	LOR	Unit	EP2513564-009	EP2513564-010	EP2513564-011	EP2513564-014	EP2513564-015
				Result	Result	Result	Result	Result
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	1	20	31	73	13
Magnesium	7439-95-4	1	mg/L	4	8	36	20	11
Sodium	7440-23-5	1	mg/L	26	31	154	177	95
Potassium	7440-09-7	1	mg/L	<1	4	9	6	18
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	1.11	0.06	0.11	<0.01	0.73
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.007	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.004	0.001	0.002
Copper	7440-50-8	0.001	mg/L	0.002	<0.001	0.003	<0.001	0.002
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.004	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.010	<0.001	0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Manganese	7439-96-5	0.001	mg/L	0.003	0.005	0.136	0.308	0.007
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
Iron	7439-89-6	0.05	mg/L	0.37	0.47	49.0	<0.05	1.08



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				Wa02	Nc4	MW-46	Wa01	MW-31
Sampling date / time				21-Aug-2025 13:49	21-Aug-2025 13:43	21-Aug-2025 13:03	21-Aug-2025 11:26	21-Aug-2025 12:13
Compound	CAS Number	LOR	Unit	EP2513564-016	EP2513564-017	EP2513564-018	EP2513564-019	EP2513564-020
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	7.57	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	487	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	302	----	----	----
EA045: Turbidity								
Turbidity	----	0.1	NTU	----	29.0	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	43	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	43	----	----	----
ED040T: Total Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	----	19	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	19	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	116	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	<1	12	67	25	3
Magnesium	7439-95-4	1	mg/L	<1	12	44	83	4
Sodium	7440-23-5	1	mg/L	<1	60	183	688	39
Potassium	7440-09-7	1	mg/L	<1	4	22	5	4
ED093T: Total Major Cations								
Calcium	7440-70-2	1	mg/L	----	14	----	----	----
Magnesium	7439-95-4	1	mg/L	----	12	----	----	----
Sodium	7440-23-5	1	mg/L	----	66	----	----	----
Potassium	7440-09-7	1	mg/L	----	4	----	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				Wa02	Nc4	MW-46	Wa01	MW-31
Sampling date / time				21-Aug-2025 13:49	21-Aug-2025 13:43	21-Aug-2025 13:03	21-Aug-2025 11:26	21-Aug-2025 12:13
Compound	CAS Number	LOR	Unit	EP2513564-016	EP2513564-017	EP2513564-018	EP2513564-019	EP2513564-020
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	0.05	0.06	0.02	0.77
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	<0.001	0.003	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.005	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	0.002	0.003	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	0.005	0.047	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	0.004	0.016	0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	0.006	0.009	<0.005
Manganese	7439-96-5	0.001	mg/L	<0.001	0.020	0.025	0.583	0.002
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	0.08	<0.01	<0.01
Iron	7439-89-6	0.05	mg/L	<0.05	0.57	1.68	12.1	0.75
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	0.74	----	----	----
Arsenic	7440-38-2	0.001	mg/L	----	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	----	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	----	0.002	----	----	----
Cobalt	7440-48-4	0.001	mg/L	----	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	----	0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	----	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	----	0.005	----	----	----
Manganese	7439-96-5	0.001	mg/L	----	0.049	----	----	----
Selenium	7782-49-2	0.01	mg/L	----	<0.01	----	----	----
Iron	7439-89-6	0.05	mg/L	----	1.93	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	0.03	----	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				Wa02	Nc4	MW-46	Wa01	MW-31
Sampling date / time				21-Aug-2025 13:49	21-Aug-2025 13:43	21-Aug-2025 13:03	21-Aug-2025 11:26	21-Aug-2025 12:13
Compound	CAS Number	LOR	Unit	EP2513564-016	EP2513564-017	EP2513564-018	EP2513564-019	EP2513564-020
				Result	Result	Result	Result	Result
EK055G: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	----	0.03	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	0.45	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	0.46	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	1.3	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	1.8	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	0.16	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	0.03	----	----	----
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	----	<0.1	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	4.53	----	----	----
ø Total Cations	----	0.01	meq/L	----	4.30	----	----	----
ø Ionic Balance	----	0.01	%	----	2.59	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	<0.5	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	----	<0.5	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	----	<2.0	----	----	----
Dimethoate	60-51-5	0.5	µg/L	----	<0.5	----	----	----
Diazinon	333-41-5	0.5	µg/L	----	<0.5	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	<0.5	----	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				Wa02	Nc4	MW-46	Wa01	MW-31
Sampling date / time				21-Aug-2025 13:49	21-Aug-2025 13:43	21-Aug-2025 13:03	21-Aug-2025 11:26	21-Aug-2025 12:13
Compound	CAS Number	LOR	Unit	EP2513564-016	EP2513564-017	EP2513564-018	EP2513564-019	EP2513564-020
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Parathion-methyl	298-00-0	2.0	µg/L	----	<2.0	----	----	----
Malathion	121-75-5	0.5	µg/L	----	<0.5	----	----	----
Fenthion	55-38-9	0.5	µg/L	----	<0.5	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	----	<0.5	----	----	----
Parathion	56-38-2	2.0	µg/L	----	<2.0	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	<0.5	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	----	<0.5	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	<0.5	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	----	<0.5	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	----	<0.5	----	----	----
Ethion	563-12-2	0.5	µg/L	----	<0.5	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	----	<0.5	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	----	<0.5	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	----	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	----	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	----	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L	----	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	----	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	----	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	<100	----	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				Wa02	Nc4	MW-46	Wa01	MW-31
Sampling date / time				21-Aug-2025 13:49	21-Aug-2025 13:43	21-Aug-2025 13:03	21-Aug-2025 11:26	21-Aug-2025 12:13
Compound	CAS Number	LOR	Unit	EP2513564-016	EP2513564-017	EP2513564-018	EP2513564-019	EP2513564-020
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	<1	----	----	----
Toluene	108-88-3	2	µg/L	----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	----	<2	----	----	----
^ Total Xylenes	----	2	µg/L	----	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	----	<5	----	----	----
EP204: Glyphosate and AMPA								
Glyphosate	1071-83-6	10	µg/L	----	<10	----	----	----
AMPA	1066-51-9	10	µg/L	----	<10	----	----	----
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	----	6	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	52.9	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	47.8	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	----	94.8	----	----	----
Toluene-D8	2037-26-5	2	%	----	92.1	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	----	94.1	----	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				MW-25	MB11s	SW4	----	----
Sampling date / time				21-Aug-2025 11:18	20-Aug-2025 16:57	20-Aug-2025 17:02	----	----
Compound	CAS Number	LOR	Unit	EP2513564-021	EP2513564-022	EP2513564-023	-----	-----
				Result	Result	Result	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	----	7.41	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	----	479	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	----	379	----	----
EA045: Turbidity								
Turbidity	----	0.1	NTU	----	----	9.3	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO ₃	DMO-210-001	1	mg/L	----	----	<1	----	----
Carbonate Alkalinity as CaCO ₃	3812-32-6	1	mg/L	----	----	<1	----	----
Bicarbonate Alkalinity as CaCO ₃	71-52-3	1	mg/L	----	----	51	----	----
Total Alkalinity as CaCO ₃	----	1	mg/L	----	----	51	----	----
ED040T: Total Major Anions								
Sulfate as SO ₄ 2-	14808-79-8	1	mg/L	----	----	17	----	----
ED041G: Sulfate (Turbidimetric) as SO₄ 2- by DA								
Sulfate as SO ₄ - Turbidimetric	14808-79-8	1	mg/L	----	----	<20	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	----	113	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	24	18	23	----	----
Magnesium	7439-95-4	1	mg/L	81	24	11	----	----
Sodium	7440-23-5	1	mg/L	677	98	51	----	----
Potassium	7440-09-7	1	mg/L	5	18	12	----	----
ED093T: Total Major Cations								
Calcium	7440-70-2	1	mg/L	----	----	22	----	----
Magnesium	7439-95-4	1	mg/L	----	----	11	----	----
Sodium	7440-23-5	1	mg/L	----	----	54	----	----
Potassium	7440-09-7	1	mg/L	----	----	11	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				MW-25	MB11s	SW4	----	----
Sampling date / time				21-Aug-2025 11:18	20-Aug-2025 16:57	20-Aug-2025 17:02	----	----
Compound	CAS Number	LOR	Unit	EP2513564-021	EP2513564-022	EP2513564-023	-----	-----
				Result	Result	Result	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.02	0.24	0.14	----	----
Arsenic	7440-38-2	0.001	mg/L	0.002	<0.001	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.002	----	----
Cobalt	7440-48-4	0.001	mg/L	0.046	<0.001	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	0.017	<0.001	0.001	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	0.010	<0.005	0.009	----	----
Manganese	7439-96-5	0.001	mg/L	0.565	0.013	0.077	----	----
Selenium	7782-49-2	0.01	mg/L	<0.01	<0.01	<0.01	----	----
Iron	7439-89-6	0.05	mg/L	11.4	0.08	2.93	----	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	----	0.18	----	----
Arsenic	7440-38-2	0.001	mg/L	----	----	<0.001	----	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	<0.0001	----	----
Chromium	7440-47-3	0.001	mg/L	----	----	<0.001	----	----
Copper	7440-50-8	0.001	mg/L	----	----	0.001	----	----
Cobalt	7440-48-4	0.001	mg/L	----	----	<0.001	----	----
Nickel	7440-02-0	0.001	mg/L	----	----	0.001	----	----
Lead	7439-92-1	0.001	mg/L	----	----	<0.001	----	----
Zinc	7440-66-6	0.005	mg/L	----	----	0.016	----	----
Manganese	7439-96-5	0.001	mg/L	----	----	0.113	----	----
Selenium	7782-49-2	0.01	mg/L	----	----	<0.01	----	----
Iron	7439-89-6	0.05	mg/L	----	----	4.25	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	----	0.07	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				MW-25	MB11s	SW4	----	----
Sampling date / time				21-Aug-2025 11:18	20-Aug-2025 16:57	20-Aug-2025 17:02	----	----
Compound	CAS Number	LOR	Unit	EP2513564-021	EP2513564-022	EP2513564-023	-----	-----
				Result	Result	Result	----	----
EK055G: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	----	----	0.07	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	----	<0.01	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	----	0.04	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	----	0.04	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	----	4.2	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	----	4.2	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	----	1.02	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	----	0.72	----	----
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	----	----	<0.1	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	----	4.21	----	----
ø Total Cations	----	0.01	meq/L	----	----	4.58	----	----
ø Ionic Balance	----	0.01	%	----	----	4.23	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	----	----	<0.5	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	----	----	<0.5	----	----
Monocrotophos	6923-22-4	2.0	µg/L	----	----	<2.0	----	----
Dimethoate	60-51-5	0.5	µg/L	----	----	<0.5	----	----
Diazinon	333-41-5	0.5	µg/L	----	----	<0.5	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	----	----	<0.5	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				MW-25	MB11s	SW4	----	----
Sampling date / time				21-Aug-2025 11:18	20-Aug-2025 16:57	20-Aug-2025 17:02	----	----
Compound	CAS Number	LOR	Unit	EP2513564-021	EP2513564-022	EP2513564-023	-----	-----
				Result	Result	Result	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Parathion-methyl	298-00-0	2.0	µg/L	----	----	<2.0	----	----
Malathion	121-75-5	0.5	µg/L	----	----	<0.5	----	----
Fenthion	55-38-9	0.5	µg/L	----	----	<0.5	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	----	----	<0.5	----	----
Parathion	56-38-2	2.0	µg/L	----	----	<2.0	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	----	<0.5	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	----	----	<0.5	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	----	<0.5	----	----
Fenamiphos	22224-92-6	0.5	µg/L	----	----	<0.5	----	----
Prothiofos	34643-46-4	0.5	µg/L	----	----	<0.5	----	----
Ethion	563-12-2	0.5	µg/L	----	----	<0.5	----	----
Carbophenothion	786-19-6	0.5	µg/L	----	----	<0.5	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	----	----	<0.5	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	----	<20	----	----
C10 - C14 Fraction	----	50	µg/L	----	----	<50	----	----
C15 - C28 Fraction	----	100	µg/L	----	----	<100	----	----
C29 - C36 Fraction	----	50	µg/L	----	----	<50	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	----	<50	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	----	<20	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	----	<20	----	----
>C10 - C16 Fraction	----	100	µg/L	----	----	<100	----	----
>C16 - C34 Fraction	----	100	µg/L	----	----	<100	----	----
>C34 - C40 Fraction	----	100	µg/L	----	----	<100	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	----	<100	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				MW-25	MB11s	SW4	----	----
Sampling date / time				21-Aug-2025 11:18	20-Aug-2025 16:57	20-Aug-2025 17:02	----	----
Compound	CAS Number	LOR	Unit	EP2513564-021	EP2513564-022	EP2513564-023	-----	-----
				Result	Result	Result	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
[^] >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	----	<100	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	----	<1	----	----
Toluene	108-88-3	2	µg/L	----	----	<2	----	----
Ethylbenzene	100-41-4	2	µg/L	----	----	<2	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	----	<2	----	----
ortho-Xylene	95-47-6	2	µg/L	----	----	<2	----	----
[^] Total Xylenes	----	2	µg/L	----	----	<2	----	----
[^] Sum of BTEX	----	1	µg/L	----	----	<1	----	----
Naphthalene	91-20-3	5	µg/L	----	----	<5	----	----
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	----	----	11	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	----	51.9	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	----	51.1	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	----	----	88.2	----	----
Toluene-D8	2037-26-5	2	%	----	----	89.9	----	----
4-Bromofluorobenzene	460-00-4	2	%	----	----	90.9	----	----



Surrogate Control Limits

Sub-Matrix: GROUNDWATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	146
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	27	153
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP204: Glyphosate and AMPA



CERTIFICATE OF ANALYSIS

Work Order : EP2518601
Client : AECOM AUSTRALIA PTY LTD
Contact : Stephen Baron
Address : LEVEL 15 58 Mounts Bay Road
PERTH WA, AUSTRALIA
Telephone : ----
Project : Borr 60644386
Order number : Borr 60644386
C-O-C number : 90768
Sampler : Stephen Baron
Site : Borr
Quote number : EP/675/21_V7
No. of samples received : 17
No. of samples analysed : 17

Page : 1 of 27
Laboratory : Environmental Division Perth
Contact : Natalie Duncan
Address : 26 Rigali Way Wangara WA Australia 6065
Telephone : +61-8-9406 1301
Date Samples Received : 07-Nov-2025 13:00
Date Analysis Commenced : 07-Nov-2025
Issue Date : 17-Nov-2025 23:17



Accreditation No. 825
Accredited for compliance with
ISO/IEC 17025 - Testing

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
Efua Wilson	Metals Chemist	Perth Inorganics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA
Stephanie Tilson	Instrument Chemist	Perth Inorganics, Wangara, WA



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H⁺ to the Cations and Nitrate, SiO₂ and Fluoride to the Anions.
- ED041G (Turbidimetric Sulphate): LOR raised for sample #1, #3, #12 and #16 due to possible sample matrix interference.
- EP071: Limited sample volume provided for analysis for EP2518601-014 & -017. LOR has been raised accordingly.
- EP071: Sample EP2518601-005 required re-extraction for results confirmation. Limited sample volume remained for re-extraction, LOR has been raised accordingly.
- ED093: It is recognised that total cations concentrations are less than dissolved for sample EP2518601-013. However, the difference is within experimental variation of the methods.
- EA010-P (Conductivity): Reported results for sample EP2518601-15 verified by re-preparation and re-analysis.
- ED041G (Turbidimetric Sulphate): LOR raised for sample #3 due to possible sample matrix interference.
- EG020: Fe result for sample EP2518601 -012 has been confirmed by re-preparation and re-analysis.
- EA015H (Total Dissolved Solids): TDS for particular samples may bias high due to possible sample matrix interferences.
- EN055-3 Ionic Balance for sample #1 and #16 out of acceptable limits due to analytes not quantified in this report.
- EK055G-NH₄: In the absence of available field data (pH and temperature), ammonium was calculated using the lab standard values. Please scrutinise accordingly. NATA accreditation does not cover this service.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW-31	MW-25	MW-15	MB-14s	MW05
Sampling date / time				06-Nov-2025 09:14	06-Nov-2025 09:43	06-Nov-2025 10:53	06-Nov-2025 11:22	06-Nov-2025 12:17
Compound	CAS Number	LOR	Unit	EP2518601-001	EP2518601-002	EP2518601-003	EP2518601-004	EP2518601-005
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	5.14	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	206	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	199	----	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	3	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	3	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<50	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	47	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	3	22	13	19	43
Magnesium	7439-95-4	1	mg/L	5	91	13	14	27
Sodium	7440-23-5	1	mg/L	34	715	197	125	105
Potassium	7440-09-7	1	mg/L	4	5	28	13	6
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.90	0.02	0.93	10.7	0.02
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.002	0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.002	0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	0.003	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	0.047	<0.001	0.011	<0.001
Nickel	7440-02-0	0.001	mg/L	0.003	0.019	0.001	0.014	<0.001



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID				MW-31	MW-25	MW-15	MB-14s	MW05
Sampling date / time				06-Nov-2025 09:14	06-Nov-2025 09:43	06-Nov-2025 10:53	06-Nov-2025 11:22	06-Nov-2025 12:17
Compound	CAS Number	LOR	Unit	EP2518601-001	EP2518601-002	EP2518601-003	EP2518601-004	EP2518601-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	0.007	<0.005	0.033	<0.005
Manganese	7439-96-5	0.001	mg/L	0.002	0.603	0.005	0.028	0.009
Selenium	7782-49-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	7439-89-6	0.05	mg/L	0.81	12.3	3.81	1.83	<0.05
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.14	----	----	----	----
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	0.14	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.7	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	1.7	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.04	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	----	----	----	----
EK085F: Dissolved Sulfide as S2-								
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	----	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	1.39	----	----	----	----
ø Total Cations	----	0.01	meq/L	2.14	----	----	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW-31	MW-25	MW-15	MB-14s	MW05
Sampling date / time				06-Nov-2025 09:14	06-Nov-2025 09:43	06-Nov-2025 10:53	06-Nov-2025 11:22	06-Nov-2025 12:17
Compound	CAS Number	LOR	Unit	EP2518601-001	EP2518601-002	EP2518601-003	EP2518601-004	EP2518601-005
				Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued								
Ø Ionic Balance	----	0.01	%	21.4	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	55	----	----	----	----



Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	MW-31	MW-25	MW-15	MB-14s	MW05
Sampling date / time					06-Nov-2025 09:14	06-Nov-2025 09:43	06-Nov-2025 10:53	06-Nov-2025 11:22	06-Nov-2025 12:17
Compound	CAS Number	LOR	Unit		EP2518601-001	EP2518601-002	EP2518601-003	EP2518601-004	EP2518601-005
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		77.7	----	----	----	----
Toluene-D8	2037-26-5	2	%		83.1	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		91.1	----	----	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW06	MW07	MW08A	MB11S	MW46
Sampling date / time				06-Nov-2025 12:48	06-Nov-2025 13:12	06-Nov-2025 13:37	06-Nov-2025 14:00	06-Nov-2025 14:23
Compound	CAS Number	LOR	Unit	EP2518601-006	EP2518601-007	EP2518601-008	EP2518601-009	EP2518601-010
				Result	Result	Result	Result	Result
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	60	58	36	18	39
Magnesium	7439-95-4	1	mg/L	20	38	35	21	36
Sodium	7440-23-5	1	mg/L	172	257	134	100	152
Potassium	7440-09-7	1	mg/L	20	18	15	17	19
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	0.12	0.33	0.12
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	0.001	0.012
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	0.020	0.007
Cobalt	7440-48-4	0.001	mg/L	0.005	<0.001	<0.001	<0.001	0.002
Nickel	7440-02-0	0.001	mg/L	0.005	0.002	<0.001	0.002	0.003
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	0.009	<0.005	0.135	<0.005
Manganese	7439-96-5	0.001	mg/L	0.323	0.050	0.100	0.009	0.003
Selenium	7782-49-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	0.046
Iron	7439-89-6	0.05	mg/L	6.78	<0.05	1.27	0.12	0.32



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID				MW10	MW11	NC4	Waqc1	Waqc2
Sampling date / time				07-Nov-2025 07:40	07-Nov-2025 08:18	07-Nov-2025 08:49	07-Nov-2025 09:13	07-Nov-2025 09:27
Compound	CAS Number	LOR	Unit	EP2518601-011	EP2518601-012	EP2518601-013	EP2518601-014	EP2518601-015
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	7.17	----	6.21	5.78
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	1900	----	4130	5
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	1340	----	2260	<10
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	<1	----	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	<1	----	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	366	----	30	<1
Total Alkalinity as CaCO3	----	1	mg/L	----	366	----	30	<1
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	<50	----	75	<1
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	435	----	1200	2
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	24	38	28	20	<1
Magnesium	7439-95-4	1	mg/L	9	58	45	83	<1
Sodium	7440-23-5	1	mg/L	42	316	272	650	<1
Potassium	7440-09-7	1	mg/L	4	12	6	5	<1
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.05	0.06	<0.01	0.02	<0.01
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.004	<0.001	0.002	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	0.003	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	0.004	0.002	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	0.002	<0.001	0.042	<0.001
Nickel	7440-02-0	0.001	mg/L	0.002	0.008	<0.001	0.015	<0.001



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID				MW10	MW11	NC4	Waqc1	Waqc2
Sampling date / time				07-Nov-2025 07:40	07-Nov-2025 08:18	07-Nov-2025 08:49	07-Nov-2025 09:13	07-Nov-2025 09:27
Compound	CAS Number	LOR	Unit	EP2518601-011	EP2518601-012	EP2518601-013	EP2518601-014	EP2518601-015
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Lead	7439-92-1	0.001	mg/L	<0.001	0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	0.009	<0.005	0.010	<0.005
Manganese	7439-96-5	0.001	mg/L	0.009	0.303	0.226	0.549	<0.001
Selenium	7782-49-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	7439-89-6	0.05	mg/L	2.27	44.3	0.05	12.5	<0.05
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	0.04	----	0.10	<0.01
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	----	0.04	----	0.10	<0.01
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	<0.01	----	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	<0.01	----	<0.01	<0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	<0.01	----	<0.01	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	4.4	----	0.2	0.1
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	4.4	----	0.2	0.1
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	0.45	----	0.06	<0.01
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	0.33	----	0.02	<0.01
EK085F: Dissolved Sulfide as S2-								
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L	----	0.1	----	0.4	<0.1
EN055: Ionic Balance								
∅ Total Anions	----	0.01	meq/L	----	19.6	----	36.0	0.06
∅ Total Cations	----	0.01	meq/L	----	20.7	----	36.2	<0.01



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW10	MW11	NC4	Waqc1	Waqc2
Sampling date / time				07-Nov-2025 07:40	07-Nov-2025 08:18	07-Nov-2025 08:49	07-Nov-2025 09:13	07-Nov-2025 09:27
Compound	CAS Number	LOR	Unit	EP2518601-011	EP2518601-012	EP2518601-013	EP2518601-014	EP2518601-015
				Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued								
Ø Ionic Balance	----	0.01	%	----	2.82	----	0.30	100
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	<20	<20
C10 - C14 Fraction	----	50	µg/L	----	<50	----	<60	<50
C15 - C28 Fraction	----	100	µg/L	----	<100	----	<100	<100
C29 - C36 Fraction	----	50	µg/L	----	<50	----	<60	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	<50	----	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	<20	<20
>C10 - C16 Fraction	----	100	µg/L	----	<100	----	<100	<100
>C16 - C34 Fraction	----	100	µg/L	----	<100	----	<100	<100
>C34 - C40 Fraction	----	100	µg/L	----	<100	----	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	<100	----	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	<100	----	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	<1	----	<1	<1
Toluene	108-88-3	2	µg/L	----	<2	----	<2	<2
Ethylbenzene	100-41-4	2	µg/L	----	<2	----	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	----	<2	<2
ortho-Xylene	95-47-6	2	µg/L	----	<2	----	<2	<2
^ Total Xylenes	----	2	µg/L	----	<2	----	<2	<2
^ Sum of BTEX	----	1	µg/L	----	<1	----	<1	<1
Naphthalene	91-20-3	5	µg/L	----	<5	----	<5	<5
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	----	74	----	102	2



Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	MW10	MW11	NC4	Waqc1	Waqc2
Sampling date / time					07-Nov-2025 07:40	07-Nov-2025 08:18	07-Nov-2025 08:49	07-Nov-2025 09:13	07-Nov-2025 09:27
Compound	CAS Number	LOR	Unit		EP2518601-011	EP2518601-012	EP2518601-013	EP2518601-014	EP2518601-015
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		----	74.2	----	70.5	68.9
Toluene-D8	2037-26-5	2	%		----	83.3	----	84.2	83.2
4-Bromofluorobenzene	460-00-4	2	%		----	124	----	92.1	121



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW27	MW04	----	----	----
Sampling date / time				07-Nov-2025 09:55	07-Nov-2025 11:08	----	----	----
Compound	CAS Number	LOR	Unit	EP2518601-016	EP2518601-017	-----	-----	-----
				Result	Result	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	----	7.53	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	----	2660	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	----	1600	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L	----	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	----	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	----	228	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	----	228	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	----	93	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	----	672	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	2	122	----	----	----
Magnesium	7439-95-4	1	mg/L	7	41	----	----	----
Sodium	7440-23-5	1	mg/L	49	392	----	----	----
Potassium	7440-09-7	1	mg/L	<1	5	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	2.79	<0.01	----	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	0.002	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	0.002	<0.001	----	----	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	0.003	<0.001	----	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW27	MW04	----	----	----
Sampling date / time				07-Nov-2025 09:55	07-Nov-2025 11:08	----	----	----
Compound	CAS Number	LOR	Unit	EP2518601-016	EP2518601-017	-----	-----	-----
				Result	Result	----	----	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Lead	7439-92-1	0.001	mg/L	0.002	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	0.010	<0.005	----	----	----
Manganese	7439-96-5	0.001	mg/L	0.009	0.134	----	----	----
Selenium	7782-49-2	0.004	mg/L	<0.004	<0.004	----	----	----
Iron	7439-89-6	0.05	mg/L	3.96	<0.05	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	----	0.65	----	----	----
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	----	0.64	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	----	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	----	<0.01	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	----	<0.01	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	----	1.3	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	----	1.3	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	----	0.08	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	----	<0.01	----	----	----
EK085F: Dissolved Sulfide as S2-								
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L	----	<0.1	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	----	25.4	----	----	----
ø Total Cations	----	0.01	meq/L	----	26.6	----	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW27	MW04	----	----	----
Sampling date / time				07-Nov-2025 09:55	07-Nov-2025 11:08	----	----	----
Compound	CAS Number	LOR	Unit	EP2518601-016	EP2518601-017	-----	-----	-----
				Result	Result	----	----	----
EN055: Ionic Balance - Continued								
Ø Ionic Balance	----	0.01	%	----	2.29	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	----	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	----	<60	----	----	----
C15 - C28 Fraction	----	100	µg/L	----	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	----	<60	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	----	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	----	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	----	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L	----	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	----	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	----	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	----	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	----	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	----	<1	----	----	----
Toluene	108-88-3	2	µg/L	----	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	----	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	----	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L	----	<2	----	----	----
^ Total Xylenes	----	2	µg/L	----	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	----	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	----	<5	----	----	----
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	----	28	----	----	----



Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	MW27	MW04	----	----	----
Sampling date / time					07-Nov-2025 09:55	07-Nov-2025 11:08	----	----	----
Compound	CAS Number	LOR	Unit		EP2518601-016	EP2518601-017	-----	-----	-----
					Result	Result	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		----	69.1	----	----	----
Toluene-D8	2037-26-5	2	%		----	83.9	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		----	120	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW-25	MW-15	MB-14s	MW05	MW06
Sampling date / time					06-Nov-2025 09:43	06-Nov-2025 10:53	06-Nov-2025 11:22	06-Nov-2025 12:17	06-Nov-2025 12:48
Compound	CAS Number	LOR	Unit		EP2518601-002	EP2518601-003	EP2518601-004	EP2518601-005	EP2518601-006
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		6.01	6.48	3.59	6.72	6.13
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		4130	1190	1020	907	1190
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		2370	756	616	572	806
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		26	75	<1	34	24
Total Alkalinity as CaCO3	----	1	mg/L		26	75	<1	34	24
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		74	<20	170	161	210
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		1210	353	212	170	228
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		0.11	2.21	0.04	0.04	0.20
EK055G-NH4: Ammonium as N by DA									
Ammonium as N	14798-03-9_N	0.01	mg/L		0.11	2.21	0.04	0.04	0.20
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	0.54	<0.01	0.11	0.28
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	0.55	<0.01	0.11	0.28
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		0.3	4.6	1.8	0.4	1.9
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		0.3	5.2	1.8	0.5	2.2

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW-25	MW-15	MB-14s	MW05	MW06
Sampling date / time				06-Nov-2025 09:43	06-Nov-2025 10:53	06-Nov-2025 11:22	06-Nov-2025 12:17	06-Nov-2025 12:48	
Compound	CAS Number	LOR	Unit	EP2518601-002	EP2518601-003	EP2518601-004	EP2518601-005	EP2518601-006	
				Result	Result	Result	Result	Result	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	0.08	0.05	0.19	0.07	0.17	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.03	<0.01	<0.01	<0.01	<0.01	
EK085F: Dissolved Sulfide as S2-									
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L	0.2	0.1	0.1	<0.1	0.2	
EN055: Ionic Balance									
Ø Total Anions	----	0.01	meq/L	36.2	11.5	9.52	8.83	11.3	
Ø Total Cations	----	0.01	meq/L	----	----	9.06	----	----	
Ø Total Cations	----	0.01	meq/L	39.8	11.0	----	9.09	12.6	
Ø Ionic Balance	----	0.01	%	----	----	2.48	----	----	
Ø Ionic Balance	----	0.01	%	4.77	2.01	----	1.46	5.64	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20	
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<60	<50	
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<60	<50	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20	
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100	
EP080: BTEXN									



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				MW-25	MW-15	MB-14s	MW05	MW06
Sampling date / time				06-Nov-2025 09:43	06-Nov-2025 10:53	06-Nov-2025 11:22	06-Nov-2025 12:17	06-Nov-2025 12:48
Compound	CAS Number	LOR	Unit	EP2518601-002	EP2518601-003	EP2518601-004	EP2518601-005	EP2518601-006
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	128	73	101	30	83
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	80.1	83.6	80.4	73.9	74.1
Toluene-D8	2037-26-5	2	%	83.4	86.3	85.9	84.4	85.6
4-Bromofluorobenzene	460-00-4	2	%	84.7	120	125	118	95.9



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW07	MW08A	MB11S	MW46	MW10
Sampling date / time					06-Nov-2025 13:12	06-Nov-2025 13:37	06-Nov-2025 14:00	06-Nov-2025 14:23	07-Nov-2025 07:40
Compound	CAS Number	LOR	Unit		EP2518601-007	EP2518601-008	EP2518601-009	EP2518601-010	EP2518601-011
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		6.61	6.59	6.98	7.10	6.80
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		1880	1100	742	1090	420
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		1130	692	496	883	257
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		22	94	43	220	54
Total Alkalinity as CaCO3	----	1	mg/L		22	94	43	220	54
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		143	38	22	127	48
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		499	271	199	84	71
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		0.03	0.42	0.02	0.02	0.18
EK055G-NH4: Ammonium as N by DA									
Ammonium as N	14798-03-9_N	0.01	mg/L		0.03	0.42	0.02	0.02	0.18
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	<0.01	0.05	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	<0.01	0.43	22.0	<0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	<0.01	0.43	22.0	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		0.7	2.0	2.1	6.0	0.8
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		0.7	2.0	2.5	28.0	0.8

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW07	MW08A	MB11S	MW46	MW10
Sampling date / time				06-Nov-2025 13:12	06-Nov-2025 13:37	06-Nov-2025 14:00	06-Nov-2025 14:23	07-Nov-2025 07:40	
Compound	CAS Number	LOR	Unit	EP2518601-007	EP2518601-008	EP2518601-009	EP2518601-010	EP2518601-011	
				Result	Result	Result	Result	Result	
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L	0.12	0.43	0.03	0.15	0.03	
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.41	<0.01	<0.01	<0.01	
EK085F: Dissolved Sulfide as S2-									
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	2.6	<0.1	<0.1	<0.1	
EN055: Ionic Balance									
Ø Total Anions	----	0.01	meq/L	----	----	----	11.0	----	
Ø Total Anions	----	0.01	meq/L	17.5	10.3	6.93	----	4.08	
Ø Total Cations	----	0.01	meq/L	17.7	10.9	7.41	12.0	3.87	
Ø Ionic Balance	----	0.01	%	----	----	----	4.44	----	
Ø Ionic Balance	----	0.01	%	0.48	2.71	3.35	----	2.69	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20	
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50	
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50	
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20	
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100	
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100	
EP080: BTEXN									



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				MW07	MW08A	MB11S	MW46	MW10
Sampling date / time				06-Nov-2025 13:12	06-Nov-2025 13:37	06-Nov-2025 14:00	06-Nov-2025 14:23	07-Nov-2025 07:40
Compound	CAS Number	LOR	Unit	EP2518601-007	EP2518601-008	EP2518601-009	EP2518601-010	EP2518601-011
				Result	Result	Result	Result	Result
EP080: BTEXN - Continued								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	25	81	19	53	38
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	74.4	72.6	76.1	76.9	74.6
Toluene-D8	2037-26-5	2	%	85.7	85.2	83.4	86.5	85.8
4-Bromofluorobenzene	460-00-4	2	%	91.2	117	95.8	124	93.6



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	NC4	MW27	----	----	----
Sampling date / time					07-Nov-2025 08:49	07-Nov-2025 09:55	----	----	----
Compound	CAS Number	LOR	Unit		EP2518601-013	EP2518601-016	-----	-----	-----
					Result	Result	----	----	----
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		7.63	4.38	----	----	----
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		1690	315	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		938	523	----	----	----
EA045: Turbidity									
Turbidity	----	0.1	NTU		26.0	----	----	----	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO3	DMO-210-001	1	mg/L		<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L		<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L		66	<1	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L		66	<1	----	----	----
ED040T: Total Major Anions									
Sulfate as SO4 2-	14808-79-8	1	mg/L		37	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA									
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L		35	<50	----	----	----
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		493	66	----	----	----
ED093T: Total Major Cations									
Calcium	7440-70-2	1	mg/L		25	----	----	----	----
Magnesium	7439-95-4	1	mg/L		41	----	----	----	----
Sodium	7440-23-5	1	mg/L		266	----	----	----	----
Potassium	7440-09-7	1	mg/L		5	----	----	----	----
EG020T: Total Metals by ICP-MS									
Aluminium	7429-90-5	0.01	mg/L		0.79	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L		<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L		<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L		<0.001	----	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				NC4	MW27	----	----	----
Sampling date / time				07-Nov-2025 08:49	07-Nov-2025 09:55	----	----	----
Compound	CAS Number	LOR	Unit	EP2518601-013	EP2518601-016	-----	-----	-----
				Result	Result	----	----	----
EG020T: Total Metals by ICP-MS - Continued								
Copper	7440-50-8	0.001	mg/L	0.002	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	0.002	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	0.002	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	0.354	----	----	----	----
Selenium	7782-49-2	0.004	mg/L	<0.004	----	----	----	----
Iron	7439-89-6	0.05	mg/L	2.20	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.02	0.09	----	----	----
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	0.02	0.09	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	0.02	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.02	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.9	2.7	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
[^] Total Nitrogen as N	----	0.1	mg/L	0.9	2.7	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.09	0.11	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.04	----	----	----
EK085F: Dissolved Sulfide as S2-								
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	0.5	----	----	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				NC4	MW27	----	----	----
Sampling date / time				07-Nov-2025 08:49	07-Nov-2025 09:55	----	----	----
Compound	CAS Number	LOR	Unit	EP2518601-013	EP2518601-016	-----	-----	-----
				Result	Result	----	----	----
EN055: Ionic Balance								
Ø Total Anions	----	0.01	meq/L	16.0	1.86	----	----	----
Ø Total Cations	----	0.01	meq/L	17.1	2.81	----	----	----
Ø Ionic Balance	----	0.01	%	3.42	20.3	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	----	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	----	----	----	----
Diazinon	333-41-5	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	----	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	----	----	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	----	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	----	----	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	----	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	NC4	MW27	----	----	----
Sampling date / time					07-Nov-2025 08:49	07-Nov-2025 09:55	----	----	----
Compound	CAS Number	LOR	Unit		EP2518601-013	EP2518601-016	-----	-----	-----
					Result	Result	----	----	----
EP080/071: Total Petroleum Hydrocarbons - Continued									
C29 - C36 Fraction	----	50	µg/L		<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L		<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L		<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L		<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	----	----	----
Toluene	108-88-3	2	µg/L		<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L		<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	----	----	----
ortho-Xylene	95-47-6	2	µg/L		<2	<2	----	----	----
^ Total Xylenes	----	2	µg/L		<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L		<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L		<5	<5	----	----	----
EP204: Glyphosate and AMPA									
Glyphosate	1071-83-6	10	µg/L		<10	----	----	----	----
AMPA	1066-51-9	10	µg/L		<10	----	----	----	----
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		5	77	----	----	----
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.5	%		53.9	----	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	NC4	MW27	----	----	----
Sampling date / time					07-Nov-2025 08:49	07-Nov-2025 09:55	----	----	----
Compound	CAS Number	LOR	Unit		EP2518601-013	EP2518601-016	-----	-----	-----
					Result	Result	----	----	----
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.5	%		52.1	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		74.1	70.0	----	----	----
Toluene-D8	2037-26-5	2	%		82.3	85.1	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		120	92.8	----	----	----



Surrogate Control Limits

Sub-Matrix: GROUNDWATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	146
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	27	153
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP204: Glyphosate and AMPA



CERTIFICATE OF ANALYSIS

Work Order	: EP2602290	Page	: 1 of 20
Client	: AECOM AUSTRALIA PTY LTD	Laboratory	: Environmental Division Perth
Contact	: Teboho Maidza	Contact	: Natalie Duncan
Address	: LEVEL 15 58 Mounts Bay Road PERTH WA, AUSTRALIA	Address	: 26 Rigali Way Wangara WA Australia 6065
Telephone	: ----	Telephone	: +61-8-9406 1301
Project	: 60737273	Date Samples Received	: 12-Feb-2026 11:45
Order number	: 60737273	Date Analysis Commenced	: 12-Feb-2026
C-O-C number	: ----	Issue Date	: 23-Feb-2026 13:37
Sampler	: Stephen, Tebohs		
Site	: BORR		
Quote number	: EP/675/21_V7		
No. of samples received	: 17		
No. of samples analysed	: 17		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Perth - State Manager	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
Efua Wilson	Metals Chemist	Perth Inorganics, Wangara, WA
Franco Lentini	LCMS Coordinator	Sydney Organics, Smithfield, NSW
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA
Niamh Carthew	Inorganic Chemist	Perth Inorganics, Wangara, WA
Stephanie Tilson	Instrument Chemist	Perth Inorganics, Wangara, WA



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H⁺ to the Cations and Nitrate, SiO₂ and Fluoride to the Anions.
- EG020: Metals LOR for sample EP2602290-011 raised due to high TDS content.
- EP068: High Failing LCS deemed acceptable as all associated analytes are <LOR. Low failing surrogate in sample "EP2602290-004" deemed acceptable as all associated analytes are not reported (NR).
- EG020: Zinc result for sample EP2602290-017 has been confirmed by re-preparation and re-analysis.
- TDS by method EA-015 may bias high for sample #8 due to the presence of fine particulate matter, which may pass through the prescribed GF/C paper. Result confirmed by re-preparation and re-analysis
- EK055G-NH₄: In the absence of available field data (pH and temperature), ammonium was calculated using the lab standard values. Please scrutinise accordingly. NATA accreditation does not cover this service.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW15	MW25	MW31	NC4	MW04
Sampling date / time					10-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	11-Feb-2026 00:00	10-Feb-2026 00:00
Compound	CAS Number	LOR	Unit		EP2602290-001	EP2602290-002	EP2602290-003	EP2602290-004	EP2602290-005
					Result	Result	Result	Result	Result
EA005P: pH by PC Titrator									
pH Value	----	0.01	pH Unit		6.93	6.33	5.49	7.42	7.49
EA010P: Conductivity by PC Titrator									
Electrical Conductivity @ 25°C	----	1	µS/cm		1610	4260	539	3190	5710
EA015: Total Dissolved Solids dried at 180 ± 5 °C									
Total Dissolved Solids @180°C	----	10	mg/L		1040	2350	340	2160	3380
EA045: Turbidity									
Turbidity	----	0.1	NTU		----	----	----	3.1	----
ED037P: Alkalinity by PC Titrator									
Hydroxide Alkalinity as CaCO ₃	----	1	mg/L		<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO ₃	3812-32-6	1	mg/L		<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO ₃	71-52-3	1	mg/L		111	25	8	40	313
Total Alkalinity as CaCO ₃	----	1	mg/L		111	25	8	40	313
ED040T: Total Major Anions									
Sulfate as SO ₄ 2-	14808-79-8	1	mg/L		----	----	----	67	----
ED041G: Sulfate (Turbidimetric) as SO₄ 2- by DA									
Sulfate as SO ₄ - Turbidimetric	14808-79-8	1	mg/L		<1	70	2	66	365
ED045G: Chloride by Discrete Analyser									
Chloride	16887-00-6	1	mg/L		465	1190	159	971	1420
ED093F: Dissolved Major Cations									
Calcium	7440-70-2	1	mg/L		13	21	9	46	212
Magnesium	7439-95-4	1	mg/L		20	73	12	104	86
Sodium	7440-23-5	1	mg/L		224	645	88	440	833
Potassium	7440-09-7	1	mg/L		41	4	7	6	5
ED093T: Total Major Cations									
Calcium	7440-70-2	1	mg/L		----	----	----	48	----
Magnesium	7439-95-4	1	mg/L		----	----	----	106	----
Sodium	7440-23-5	1	mg/L		----	----	----	447	----
Potassium	7440-09-7	1	mg/L		----	----	----	7	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				MW15	MW25	MW31	NC4	MW04
Sampling date / time				10-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	11-Feb-2026 00:00	10-Feb-2026 00:00
Compound	CAS Number	LOR	Unit	EP2602290-001	EP2602290-002	EP2602290-003	EP2602290-004	EP2602290-005
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.89	<0.01	0.47	<0.01	<0.01
Arsenic	7440-38-2	0.001	mg/L	0.002	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.003	<0.001	<0.001	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	0.037	<0.001	<0.001	0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	0.014	<0.001	<0.001	<0.001
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005
Manganese	7439-96-5	0.001	mg/L	0.004	0.506	0.009	0.278	0.177
Selenium	7782-49-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	7439-89-6	0.05	mg/L	4.69	<0.05	1.86	0.18	<0.05
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	----	----	----	0.06	----
Arsenic	7440-38-2	0.001	mg/L	----	----	----	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	----	----	----	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	----	----	----	<0.001	----
Copper	7440-50-8	0.001	mg/L	----	----	----	<0.001	----
Cobalt	7440-48-4	0.001	mg/L	----	----	----	<0.001	----
Nickel	7440-02-0	0.001	mg/L	----	----	----	<0.001	----
Lead	7439-92-1	0.001	mg/L	----	----	----	<0.001	----
Zinc	7440-66-6	0.005	mg/L	----	----	----	<0.005	----
Manganese	7439-96-5	0.001	mg/L	----	----	----	0.403	----
Selenium	7782-49-2	0.004	mg/L	----	----	----	<0.004	----
Iron	7439-89-6	0.05	mg/L	----	----	----	0.66	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	3.10	0.16	0.66	0.06	0.29



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW15	MW25	MW31	NC4	MW04
Sampling date / time					10-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	11-Feb-2026 00:00	10-Feb-2026 00:00
Compound	CAS Number	LOR	Unit		EP2602290-001	EP2602290-002	EP2602290-003	EP2602290-004	EP2602290-005
					Result	Result	Result	Result	Result
EK055G: Ammonium as N by DA									
Ammonium as N	14798-03-9_N	0.01	mg/L		3.09	0.16	0.66	0.06	0.29
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	<0.01	0.03	0.05	<0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	<0.01	0.03	0.05	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		5.5	0.3	1.2	1.0	0.5
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		5.5	0.3	1.2	1.0	0.5
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.07	0.19	0.03	0.07	0.02
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EK085F: Dissolved Sulfide as S2-									
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L		0.1	0.2	<0.1	<0.1	<0.1
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		15.3	35.5	4.69	29.6	53.9
ø Total Cations	----	0.01	meq/L		13.1	35.2	5.44	30.1	54.0
ø Ionic Balance	----	0.01	%		7.91	0.44	7.47	0.98	0.10
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.5	µg/L		----	----	----	<0.5	----
Demeton-S-methyl	919-86-8	0.5	µg/L		----	----	----	<0.5	----
Monocrotophos	6923-22-4	2.0	µg/L		----	----	----	<2.0	----
Dimethoate	60-51-5	0.5	µg/L		----	----	----	<0.5	----
Diazinon	333-41-5	0.5	µg/L		----	----	----	<0.5	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L		----	----	----	<0.5	----



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				MW15	MW25	MW31	NC4	MW04
Sampling date / time				10-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	11-Feb-2026 00:00	10-Feb-2026 00:00
Compound	CAS Number	LOR	Unit	EP2602290-001	EP2602290-002	EP2602290-003	EP2602290-004	EP2602290-005
				Result	Result	Result	Result	Result
EP068B: Organophosphorus Pesticides (OP) - Continued								
Parathion-methyl	298-00-0	2.0	µg/L	----	----	----	<2.0	----
Malathion	121-75-5	0.5	µg/L	----	----	----	<0.5	----
Fenthion	55-38-9	0.5	µg/L	----	----	----	<0.5	----
Chlorpyrifos	2921-88-2	0.5	µg/L	----	----	----	<0.5	----
Parathion	56-38-2	2.0	µg/L	----	----	----	<2.0	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	----	----	----	<0.5	----
Chlorfenvinphos	470-90-6	0.5	µg/L	----	----	----	<0.5	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	----	----	----	<0.5	----
Fenamiphos	22224-92-6	0.5	µg/L	----	----	----	<0.5	----
Prothiofos	34643-46-4	0.5	µg/L	----	----	----	<0.5	----
Ethion	563-12-2	0.5	µg/L	----	----	----	<0.5	----
Carbophenothion	786-19-6	0.5	µg/L	----	----	----	<0.5	----
Azinphos Methyl	86-50-0	0.5	µg/L	----	----	----	<0.5	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	<100



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				MW15	MW25	MW31	NC4	MW04
Sampling date / time				10-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	11-Feb-2026 00:00	10-Feb-2026 00:00
Compound	CAS Number	LOR	Unit	EP2602290-001	EP2602290-002	EP2602290-003	EP2602290-004	EP2602290-005
				Result	Result	Result	Result	Result
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5
EP204: Glyphosate and AMPA								
Glyphosate	1071-83-6	10	µg/L	----	----	----	<10	----
AMPA	1066-51-9	10	µg/L	----	----	----	<10	----
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	104	105	71	6	90
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	----	----	----	47.1	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	----	----	----	48.8	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	101	89.6	108	93.3	87.6
Toluene-D8	2037-26-5	2	%	99.2	97.4	95.5	98.2	93.9
4-Bromofluorobenzene	460-00-4	2	%	118	119	112	114	109



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				MW05	MW06	MW07	MW08a	MW10
Sampling date / time				11-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	11-Feb-2026 00:00
Compound	CAS Number	LOR	Unit	EP2602290-006	EP2602290-007	EP2602290-008	EP2602290-009	EP2602290-010
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.87	5.84	6.72	7.03	6.60
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	788	1470	1820	758	646
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	448	986	1600	482	401
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	56	10	23	110	25
Total Alkalinity as CaCO3	----	1	mg/L	56	10	23	110	25
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	94	265	148	13	71
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	130	282	492	160	126
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	36	57	57	24	17
Magnesium	7439-95-4	1	mg/L	19	14	36	18	15
Sodium	7440-23-5	1	mg/L	91	194	243	104	76
Potassium	7440-09-7	1	mg/L	6	18	17	15	7
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.02	0.29	<0.01	0.17	0.08
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.004	<0.001	<0.001	0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.002
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	0.001	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	<0.001	0.014	0.002	<0.001	<0.001
Nickel	7440-02-0	0.001	mg/L	<0.001	0.016	0.004	<0.001	<0.001



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW05	MW06	MW07	MW08a	MW10
Sampling date / time					11-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	11-Feb-2026 00:00
Compound	CAS Number	LOR	Unit		EP2602290-006	EP2602290-007	EP2602290-008	EP2602290-009	EP2602290-010
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		<0.005	<0.005	0.085	<0.005	<0.005
Manganese	7439-96-5	0.001	mg/L		0.007	0.066	0.061	0.089	0.012
Selenium	7782-49-2	0.004	mg/L		<0.004	<0.004	<0.004	<0.004	<0.004
Iron	7439-89-6	0.05	mg/L		0.14	29.0	<0.05	0.80	1.73
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		0.05	0.47	0.13	0.44	0.32
EK055G-NH4: Ammonium as N by DA									
Ammonium as N	14798-03-9_N	0.01	mg/L		0.05	0.47	0.13	0.44	0.32
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		0.78	<0.01	0.04	<0.01	0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		0.78	<0.01	0.04	<0.01	0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		0.4	1.4	5.9	2.1	1.0
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		1.2	1.4	5.9	2.1	1.0
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.04	0.03	0.74	0.70	0.03
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		0.01	<0.01	<0.01	0.61	<0.01
EK085F: Dissolved Sulfide as S2-									
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L		<0.1	<0.1	<0.1	2.9	<0.1
EN055: Ionic Balance									
∅ Total Anions	----	0.01	meq/L		6.74	13.7	17.4	6.98	5.53
∅ Total Cations	----	0.01	meq/L		7.47	12.9	16.8	7.59	5.57



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW05	MW06	MW07	MW08a	MW10
Sampling date / time					11-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	11-Feb-2026 00:00
Compound	CAS Number	LOR	Unit		EP2602290-006	EP2602290-007	EP2602290-008	EP2602290-009	EP2602290-010
					Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued									
Ø Ionic Balance	-----	0.01	%		5.13	2.92	1.78	4.15	0.32
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	-----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	-----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	-----	100	µg/L		<100	<100	<100	<100	<100
C29 - C36 Fraction	-----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	-----	50	µg/L		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	-----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	-----	100	µg/L		<100	<100	<100	<100	<100
>C34 - C40 Fraction	-----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	-----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	-----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	-----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	-----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	-----	1	mg/L		55	141	51	75	51



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW05	MW06	MW07	MW08a	MW10
Sampling date / time					11-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	11-Feb-2026 00:00
Compound	CAS Number	LOR	Unit		EP2602290-006	EP2602290-007	EP2602290-008	EP2602290-009	EP2602290-010
					Result	Result	Result	Result	Result
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		101	91.9	85.7	98.3	89.5
Toluene-D8	2037-26-5	2	%		94.6	97.2	96.2	103	98.7
4-Bromofluorobenzene	460-00-4	2	%		108	113	112	117	112



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				MW11	MW46	MB11s	MB14s	WAQC1
Sampling date / time				11-Feb-2026 00:00	11-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	[10-Feb-2026]
Compound	CAS Number	LOR	Unit	EP2602290-011	EP2602290-012	EP2602290-013	EP2602290-014	EP2602290-015
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.70	7.24	7.31	3.66	6.51
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	21100	1300	816	1100	750
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	13800	897	536	692	481
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	2600	193	50	<1	55
Total Alkalinity as CaCO3	----	1	mg/L	2600	193	50	<1	55
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	170	155	25	189	110
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	7430	125	211	237	114
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	189	43	19	26	34
Magnesium	7439-95-4	1	mg/L	534	41	21	17	18
Sodium	7440-23-5	1	mg/L	4370	170	100	155	88
Potassium	7440-09-7	1	mg/L	41	22	17	11	6
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.07	0.08	0.31	1.39	0.02
Arsenic	7440-38-2	0.001	mg/L	0.009	<0.001	<0.001	<0.001	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0002	<0.0001	0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	0.006	0.008	0.002	<0.001	<0.001
Copper	7440-50-8	0.001	mg/L	<0.002	0.006	0.085	<0.001	<0.001
Cobalt	7440-48-4	0.001	mg/L	0.002	0.002	<0.001	0.008	<0.001
Nickel	7440-02-0	0.001	mg/L	0.016	0.002	0.004	0.011	0.001



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW11	MW46	MB11s	MB14s	WAQC1
Sampling date / time					11-Feb-2026 00:00	11-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	[10-Feb-2026]
Compound	CAS Number	LOR	Unit		EP2602290-011	EP2602290-012	EP2602290-013	EP2602290-014	EP2602290-015
					Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L		<0.002	<0.001	0.006	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L		<0.010	<0.005	1.01	4.44	<0.005
Manganese	7439-96-5	0.001	mg/L		0.408	0.003	0.021	0.036	0.007
Selenium	7782-49-2	0.004	mg/L		<0.008	0.063	<0.004	<0.004	<0.004
Iron	7439-89-6	0.05	mg/L		1.80	0.21	0.12	5.37	0.15
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		0.10	0.03	0.18	0.23	0.05
EK055G-NH4: Ammonium as N by DA									
Ammonium as N	14798-03-9_N	0.01	mg/L		0.10	0.03	0.18	0.23	0.05
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	0.06	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	24.1	0.06	0.02	0.88
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	24.2	0.06	0.02	0.88
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		12.1	4.1	3.9	1.4	0.4
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		12.1	28.3	4.0	1.4	1.3
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		0.23	0.10	0.06	0.09	0.04
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		0.16	<0.01	<0.01	<0.01	0.02
EK085F: Dissolved Sulfide as S2-									
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L		<0.1	<0.1	<0.1	0.2	<0.1
EN055: Ionic Balance									
∅ Total Anions	----	0.01	meq/L		----	12.3	----	----	----
∅ Total Anions	----	0.01	meq/L		265	----	7.47	10.6	6.60



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW11	MW46	MB11s	MB14s	WAQC1
Sampling date / time					11-Feb-2026 00:00	11-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	[10-Feb-2026]
Compound	CAS Number	LOR	Unit		EP2602290-011	EP2602290-012	EP2602290-013	EP2602290-014	EP2602290-015
					Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued									
ø Total Cations	----	0.01	meq/L		245	13.5	7.46	9.72	7.16
ø Ionic Balance	----	0.01	%		----	4.40	----	----	----
ø Ionic Balance	----	0.01	%		4.04	----	0.07	4.43	4.03
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L		<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L		<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L		<50	<50	<50	<50	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L		<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L		<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
>C34 - C40 Fraction	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L		<100	<100	<100	<100	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L		<100	<100	<100	<100	<100
EP080: BTEXN									
Benzene	71-43-2	1	µg/L		<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L		<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L		<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L		<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L		<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L		<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L		<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L		<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	MW11	MW46	MB11s	MB14s	WAQC1
Sampling date / time					11-Feb-2026 00:00	11-Feb-2026 00:00	10-Feb-2026 00:00	10-Feb-2026 00:00	[10-Feb-2026]
Compound	CAS Number	LOR	Unit		EP2602290-011	EP2602290-012	EP2602290-013	EP2602290-014	EP2602290-015
					Result	Result	Result	Result	Result
ED038P: Acidity by Auto Titrator									
Acidity as CaCO3	----	1	mg/L		117	72	15	103	51
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		109	96.4	103	88.5	92.2
Toluene-D8	2037-26-5	2	%		102	96.4	99.4	96.9	90.6
4-Bromofluorobenzene	460-00-4	2	%		114	108	115	113	107



Analytical Results

Sub-Matrix: WATER
 (Matrix: WATER)

Sample ID

				WAQC2	WAQC3	----	----	----
Sampling date / time				[10-Feb-2026]	[10-Feb-2026]	----	----	----
Compound	CAS Number	LOR	Unit	EP2602290-016	EP2602290-017	-----	-----	-----
				Result	Result	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	5.44	7.10	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	<1	123	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	<10	64	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	<1	11	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	<1	11	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	<1	<1	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	<1	30	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	<1	1	----	----	----
Magnesium	7439-95-4	1	mg/L	<1	3	----	----	----
Sodium	7440-23-5	1	mg/L	<1	20	----	----	----
Potassium	7440-09-7	1	mg/L	<1	<1	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	<0.01	----	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	WAQC2	WAQC3	----	----	----
Sampling date / time					[10-Feb-2026]	[10-Feb-2026]	----	----	----
Compound	CAS Number	LOR	Unit		EP2602290-016	EP2602290-017	-----	-----	-----
					Result	Result	----	----	----
EG020F: Dissolved Metals by ICP-MS - Continued									
Lead	7439-92-1	0.001	mg/L		<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L		<0.005	0.658	----	----	----
Manganese	7439-96-5	0.001	mg/L		<0.001	<0.001	----	----	----
Selenium	7782-49-2	0.004	mg/L		<0.004	<0.004	----	----	----
Iron	7439-89-6	0.05	mg/L		<0.05	<0.05	----	----	----
EK055G: Ammonia as N by Discrete Analyser									
Ammonia as N	7664-41-7	0.01	mg/L		<0.01	<0.01	----	----	----
EK055G-NH4: Ammonium as N by DA									
Ammonium as N	14798-03-9_N	0.01	mg/L		<0.01	<0.01	----	----	----
EK057G: Nitrite as N by Discrete Analyser									
Nitrite as N	14797-65-0	0.01	mg/L		<0.01	<0.01	----	----	----
EK058G: Nitrate as N by Discrete Analyser									
Nitrate as N	14797-55-8	0.01	mg/L		<0.01	<0.01	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser									
Nitrite + Nitrate as N	----	0.01	mg/L		<0.01	<0.01	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser									
Total Kjeldahl Nitrogen as N	----	0.1	mg/L		<0.1	<0.1	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser									
^ Total Nitrogen as N	----	0.1	mg/L		<0.1	<0.1	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser									
Total Phosphorus as P	----	0.01	mg/L		<0.01	<0.01	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser									
Reactive Phosphorus as P	14265-44-2	0.01	mg/L		<0.01	<0.01	----	----	----
EK085F: Dissolved Sulfide as S2-									
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L		---	<0.1	----	----	----
EN055: Ionic Balance									
ø Total Anions	----	0.01	meq/L		<0.01	1.07	----	----	----
ø Total Cations	----	0.01	meq/L		<0.01	1.17	----	----	----

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	WAQC2	WAQC3	----	----	----
Sampling date / time					[10-Feb-2026]	[10-Feb-2026]	----	----	----
Compound	CAS Number	LOR	Unit	EP2602290-016	EP2602290-017	-----	-----	-----	
				Result	Result	----	----	----	
EN055: Ionic Balance - Continued									
Ø Ionic Balance	----	0.01	%	<0.01	----	----	----	----	----
Ø Ionic Balance	----	0.01	%	----	4.51	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----	----
EP080: BTEXN									
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----	----
ED038P: Acidity by Auto Titrator									



Analytical Results

Sub-Matrix: WATER (Matrix: WATER)				Sample ID	WAQC2	WAQC3	----	----	----
Sampling date / time					[10-Feb-2026]	[10-Feb-2026]	----	----	----
Compound	CAS Number	LOR	Unit		EP2602290-016	EP2602290-017	-----	-----	-----
					Result	Result	----	----	----
ED038P: Acidity by Auto Titrator - Continued									
Acidity as CaCO3	----	1	mg/L		2	2	----	----	----
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	2	%		94.7	89.7	----	----	----
Toluene-D8	2037-26-5	2	%		94.8	99.2	----	----	----
4-Bromofluorobenzene	460-00-4	2	%		112	112	----	----	----



Surrogate Control Limits

Sub-Matrix: WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	146
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	27	153
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP204: Glyphosate and AMPA



CERTIFICATE OF ANALYSIS

Work Order : EP2607960
Client : AECOM AUSTRALIA PTY LTD
Contact : Hannah Ryan-Gadsden
Address : LEVEL 15 58 Mounts Bay Road
PERTH WA, AUSTRALIA
Telephone : ----
Project : BORR quarterly
Order number : 60644386/1.02.02
C-O-C number : 97345
Sampler : Hannah Ryan-Gadsden
Site : BORR
Quote number : EP/675/21_V8
No. of samples received : 17
No. of samples analysed : 17

Page : 1 of 22
Laboratory : Environmental Division Perth
Contact : Natalie Duncan
Address : 26 Rigali Way Wangara WA Australia 6065
Telephone : +61-8-9406 1301
Date Samples Received : 14-May-2026 12:00
Date Analysis Commenced : 14-May-2026
Issue Date : 25-May-2026 17:08



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Canhuang Ke	Inorganics Supervisor	Perth Inorganics, Wangara, WA
Chris Lemaitre	Perth - State Manager	Perth Inorganics, Wangara, WA
Daniel Fisher	Inorganics Analyst	Perth Inorganics, Wangara, WA
Efua Wilson	Metals Chemist	Perth Inorganics, Wangara, WA
John Horwood	Organic Supervisor	Perth Organics, Wangara, WA



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

LOR = Limit of reporting

^ = This result is computed from individual analyte detections at or above the level of reporting

ø = ALS is not NATA accredited for these tests.

~ = Indicates an estimated value.

- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- As per QWI – EN55-3 Data Interpreting Procedures, Ionic balances are typically calculated using Major Anions - Chloride, Alkalinity and Sulfate; and Major Cations - Calcium, Magnesium, Potassium and Sodium. Where applicable and dependent upon sample matrix, the Ionic Balance may also include the additional contribution of Ammonia, Dissolved Metals by ICPMS and H⁺ to the Cations and Nitrate, SiO₂ and Fluoride to the Anions.
- EG020: Metals LOR for sample EP2607960 -013 raised due to high TDS content.
- ED041G (Turbidimetric Sulphate): LOR raised for sample #3 due to possible sample matrix interference.
- EN055-3 (Ionic Balance): Major Cations for sample EP2607960-006 and 009 were calculated including the additional contribution of dissolved Aluminium and Iron.
- EA015H (Total Dissolved Solids): TDS for various samples biasing high due to possible sample matrix interferences.
- EK055G-NH₄: In the absence of available field data (pH and temperature), ammonium was calculated using the lab standard values. Please scrutinise accordingly. NATA accreditation does not cover this service.
- Sodium Adsorption Ratio (where reported): Where results for Na, Ca or Mg are <LOR, a concentration at half the reported LOR is incorporated into the SAR calculation. This represents a conservative approach for Na relative to the assumption that <LOR = zero concentration and a conservative approach for Ca & Mg relative to the assumption that <LOR is equivalent to the LOR concentration.
- ED045G: The presence of Thiocyanate, Thiosulfate and Sulfite can positively contribute to the chloride result, thereby may bias results higher than expected. Results should be scrutinised accordingly.



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				WQA01_260512	MW25_260512	MW31_260512	MW15_260512	MB14s_260512
Sampling date / time				12-May-2026 13:01	12-May-2026 13:02	12-May-2026 13:04	12-May-2026 13:09	12-May-2026 13:54
Compound	CAS Number	LOR	Unit	EP2607960-001	EP2607960-002	EP2607960-003	EP2607960-005	EP2607960-006
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	5.85	5.81	5.46	6.41	4.47
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	4120	4150	969	1570	1060
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	2860	2690	619	1130	676
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	23	23	6	107	<1
Total Alkalinity as CaCO3	----	1	mg/L	23	23	6	107	<1
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	70	71	<5	3	166
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	1340	1310	309	441	246
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	22	21	13	15	32
Magnesium	7439-95-4	1	mg/L	89	88	19	26	18
Sodium	7440-23-5	1	mg/L	693	687	133	238	134
Potassium	7440-09-7	1	mg/L	5	5	10	48	11
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.03	0.03	0.35	1.45	5.09
Arsenic	7440-38-2	0.001	mg/L	0.002	0.002	<0.001	0.002	<0.001
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	<0.001	0.004	<0.001
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	0.001
Cobalt	7440-48-4	0.001	mg/L	0.050	0.051	<0.001	<0.001	0.006
Nickel	7440-02-0	0.001	mg/L	0.017	0.018	<0.001	<0.001	0.007



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				WQA01_260512	MW25_260512	MW31_260512	MW15_260512	MB14s_260512
Sampling date / time				12-May-2026 13:01	12-May-2026 13:02	12-May-2026 13:04	12-May-2026 13:09	12-May-2026 13:54
Compound	CAS Number	LOR	Unit	EP2607960-001	EP2607960-002	EP2607960-003	EP2607960-005	EP2607960-006
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	7440-66-6	0.005	mg/L	0.008	0.009	<0.005	<0.005	0.011
Manganese	7439-96-5	0.001	mg/L	0.638	0.635	0.019	0.007	0.043
Selenium	7782-49-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.004
Iron	7439-89-6	0.05	mg/L	13.6	13.3	6.60	6.02	8.14
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.08	0.08	1.08	3.12	0.53
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	0.08	0.08	1.08	3.12	0.53
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	<0.01	0.01	0.01	0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	<0.01	0.01	0.01	0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.3	0.3	1.8	6.0	1.0
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	0.3	0.3	1.8	6.0	1.0
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.06	0.06	0.06	0.06	0.04
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	0.02	0.02	<0.01	<0.01	<0.01
EK085F: Dissolved Sulfide as S2-								
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L	0.2	0.2	0.5	0.2	0.2
EN055: Ionic Balance								
∅ Total Anions	----	0.01	meq/L	39.7	38.9	8.84	14.6	10.4
∅ Total Cations	----	0.01	meq/L	----	----	----	----	10.2



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				WQA01_260512	MW25_260512	MW31_260512	MW15_260512	MB14s_260512
Sampling date / time				12-May-2026 13:01	12-May-2026 13:02	12-May-2026 13:04	12-May-2026 13:09	12-May-2026 13:54
Compound	CAS Number	LOR	Unit	EP2607960-001	EP2607960-002	EP2607960-003	EP2607960-005	EP2607960-006
				Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued								
ø Total Cations	----	0.01	meq/L	38.7	38.3	8.25	14.5	----
ø Ionic Balance	----	0.01	%	----	----	----	----	0.98
ø Ionic Balance	----	0.01	%	1.30	0.76	3.41	0.59	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	150	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	150	<50
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	140	<100
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	140	<100
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				WQA01_260512	MW25_260512	MW31_260512	MW15_260512	MB14s_260512
Sampling date / time				12-May-2026 13:01	12-May-2026 13:02	12-May-2026 13:04	12-May-2026 13:09	12-May-2026 13:54
Compound	CAS Number	LOR	Unit	EP2607960-001	EP2607960-002	EP2607960-003	EP2607960-005	EP2607960-006
				Result	Result	Result	Result	Result
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	84	83	42	52	62
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	104	103	106	104	103
Toluene-D8	2037-26-5	2	%	99.4	100	101	101	99.5
4-Bromofluorobenzene	460-00-4	2	%	98.0	99.7	103	98.7	97.4



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW04_260512	MW05_260512	MW06_260512	MW46_260513	MW11_260513
Sampling date / time				12-May-2026 14:33	12-May-2026 15:42	12-May-2026 15:44	13-May-2026 08:18	13-May-2026 08:35
Compound	CAS Number	LOR	Unit	EP2607960-007	EP2607960-008	EP2607960-009	EP2607960-012	EP2607960-013
				Result	Result	Result	Result	Result
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.08	6.45	6.22	6.49	7.49
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	4940	827	1380	798	28600
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	3450	574	999	648	18900
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	<1	<1
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	<1
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	302	46	47	110	2310
Total Alkalinity as CaCO3	----	1	mg/L	302	46	47	110	2310
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	336	138	234	166	924
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	1300	147	282	83	9400
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	206	37	42	33	199
Magnesium	7439-95-4	1	mg/L	81	20	14	22	619
Sodium	7440-23-5	1	mg/L	755	104	181	99	5760
Potassium	7440-09-7	1	mg/L	5	6	20	14	53
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	0.03	0.23	0.13	0.04
Arsenic	7440-38-2	0.001	mg/L	<0.001	0.002	0.002	0.002	0.008
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0002
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	0.001	0.006	0.004
Copper	7440-50-8	0.001	mg/L	<0.001	0.001	<0.001	<0.001	<0.002
Cobalt	7440-48-4	0.001	mg/L	0.001	<0.001	0.005	0.004	0.003
Nickel	7440-02-0	0.001	mg/L	<0.001	0.002	0.007	0.002	0.020



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW04_260512	MW05_260512	MW06_260512	MW46_260513	MW11_260513
Sampling date / time				12-May-2026 14:33	12-May-2026 15:42	12-May-2026 15:44	13-May-2026 08:18	13-May-2026 08:35
Compound	CAS Number	LOR	Unit	EP2607960-007	EP2607960-008	EP2607960-009	EP2607960-012	EP2607960-013
				Result	Result	Result	Result	Result
EG020F: Dissolved Metals by ICP-MS - Continued								
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	<0.001	<0.001	<0.002
Zinc	7440-66-6	0.005	mg/L	<0.005	0.011	<0.005	0.006	<0.010
Manganese	7439-96-5	0.001	mg/L	0.185	0.010	0.130	0.013	0.224
Selenium	7782-49-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	<0.008
Iron	7439-89-6	0.05	mg/L	3.16	<0.05	33.5	11.4	2.82
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.28	0.05	0.37	0.46	0.08
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	0.28	0.05	0.37	0.46	0.08
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.01	0.22	<0.01	0.01	<0.01
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.01	0.22	<0.01	0.01	<0.01
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	0.5	0.8	1.8	2.1	10.0
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	0.5	1.0	1.8	2.1	10.0
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	<0.01	0.09	0.02	0.13	0.29
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	0.02	<0.01	0.01	0.07
EK085F: Dissolved Sulfide as S2-								
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	<0.1	0.2	0.1	<0.1
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	49.7	7.94	13.8	8.00	331
ø Total Cations	----	0.01	meq/L	----	----	11.6	----	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW04_260512	MW05_260512	MW06_260512	MW46_260513	MW11_260513
Sampling date / time				12-May-2026 14:33	12-May-2026 15:42	12-May-2026 15:44	13-May-2026 08:18	13-May-2026 08:35
Compound	CAS Number	LOR	Unit	EP2607960-007	EP2607960-008	EP2607960-009	EP2607960-012	EP2607960-013
				Result	Result	Result	Result	Result
EN055: Ionic Balance - Continued								
ø Total Cations	----	0.01	meq/L	49.9	8.17	----	8.12	313
ø Ionic Balance	----	0.01	%	----	----	1.12	----	----
ø Ionic Balance	----	0.01	%	0.21	1.43	----	0.78	2.76
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	<20
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	<50	<50
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	70
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	<50	70
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	<20
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	<20
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	140
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	<100
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	140
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	<100
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	<1
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	<2
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	<2
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	<2
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	<2
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	<2
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	<1
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	<5



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW04_260512	MW05_260512	MW06_260512	MW46_260513	MW11_260513
Sampling date / time				12-May-2026 14:33	12-May-2026 15:42	12-May-2026 15:44	13-May-2026 08:18	13-May-2026 08:35
Compound	CAS Number	LOR	Unit	EP2607960-007	EP2607960-008	EP2607960-009	EP2607960-012	EP2607960-013
				Result	Result	Result	Result	Result
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	40	26	69	46	68
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	103	103	103	103	107
Toluene-D8	2037-26-5	2	%	101	101	101	99.9	99.8
4-Bromofluorobenzene	460-00-4	2	%	100	100	100.0	97.8	99.6



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW10_260513	MW07_260513	MB11s_260513	MW08a_260513	----
Sampling date / time				13-May-2026 09:14	13-May-2026 10:15	13-May-2026 10:54	13-May-2026 11:38	----
Compound	CAS Number	LOR	Unit	EP2607960-014	EP2607960-015	EP2607960-016	EP2607960-017	-----
				Result	Result	Result	Result	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	6.27	5.96	6.82	6.61	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	671	2030	780	526	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	439	1480	524	370	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	<1	<1	<1	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	<1	<1	<1	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	38	14	46	166	----
Total Alkalinity as CaCO3	----	1	mg/L	38	14	46	166	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	66	227	22	<1	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	140	540	204	59	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	18	76	19	15	----
Magnesium	7439-95-4	1	mg/L	17	45	21	11	----
Sodium	7440-23-5	1	mg/L	83	268	97	86	----
Potassium	7440-09-7	1	mg/L	8	27	17	11	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.11	<0.01	0.32	0.20	----
Arsenic	7440-38-2	0.001	mg/L	0.001	<0.001	<0.001	<0.001	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	----
Chromium	7440-47-3	0.001	mg/L	0.002	<0.001	0.001	0.001	----
Copper	7440-50-8	0.001	mg/L	<0.001	0.002	0.003	<0.001	----
Cobalt	7440-48-4	0.001	mg/L	<0.001	0.001	<0.001	<0.001	----
Nickel	7440-02-0	0.001	mg/L	<0.001	0.004	0.002	<0.001	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW10_260513	MW07_260513	MB11s_260513	MW08a_260513	----
Sampling date / time				13-May-2026 09:14	13-May-2026 10:15	13-May-2026 10:54	13-May-2026 11:38	----
Compound	CAS Number	LOR	Unit	EP2607960-014	EP2607960-015	EP2607960-016	EP2607960-017	-----
				Result	Result	Result	Result	----
EG020F: Dissolved Metals by ICP-MS - Continued								
Lead	7439-92-1	0.001	mg/L	<0.001	0.004	<0.001	<0.001	----
Zinc	7440-66-6	0.005	mg/L	<0.005	0.030	0.062	0.005	----
Manganese	7439-96-5	0.001	mg/L	0.014	0.092	0.019	0.051	----
Selenium	7782-49-2	0.004	mg/L	<0.004	<0.004	<0.004	<0.004	----
Iron	7439-89-6	0.05	mg/L	2.78	<0.05	0.16	0.59	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.38	<0.01	0.28	0.35	----
EK055G-NH4: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	0.38	<0.01	0.28	0.35	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	<0.01	<0.01	<0.01	<0.01	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	<0.01	0.04	<0.01	<0.01	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.04	<0.01	<0.01	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.4	5.3	2.3	1.7	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	1.4	5.3	2.3	1.7	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.07	0.59	0.04	0.75	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	<0.01	<0.01	0.63	----
EK085F: Dissolved Sulfide as S2-								
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L	0.2	<0.1	0.2	1.9	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	6.08	20.2	7.13	4.98	----
ø Total Cations	----	0.01	meq/L	6.11	19.8	7.33	5.68	----



Analytical Results

Sub-Matrix: GROUNDWATER
 (Matrix: WATER)

Sample ID

				MW10_260513	MW07_260513	MB11s_260513	MW08a_260513	----
Sampling date / time				13-May-2026 09:14	13-May-2026 10:15	13-May-2026 10:54	13-May-2026 11:38	----
Compound	CAS Number	LOR	Unit	EP2607960-014	EP2607960-015	EP2607960-016	EP2607960-017	-----
				Result	Result	Result	Result	----
EN055: Ionic Balance - Continued								
Ø Ionic Balance	----	0.01	%	0.24	0.98	1.37	6.52	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	<20	<20	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	<50	60	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	<100	<100	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	<50	<50	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	<50	60	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	<20	<20	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	<20	<20	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	<100	<100	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	<100	<100	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	<100	<100	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	<1	<1	----
Toluene	108-88-3	2	µg/L	<2	<2	<2	<2	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	<2	<2	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	<2	<2	----
ortho-Xylene	95-47-6	2	µg/L	<2	<2	<2	<2	----
^ Total Xylenes	----	2	µg/L	<2	<2	<2	<2	----
^ Sum of BTEX	----	1	µg/L	<1	<1	<1	<1	----
Naphthalene	91-20-3	5	µg/L	<5	<5	<5	<5	----
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	25	28	10	46	----



Analytical Results

Sub-Matrix: GROUNDWATER (Matrix: WATER)				Sample ID	MW10_260513	MW07_260513	MB11s_260513	MW08a_260513	----
Sampling date / time					13-May-2026 09:14	13-May-2026 10:15	13-May-2026 10:54	13-May-2026 11:38	----
Compound	CAS Number	LOR	Unit		EP2607960-014	EP2607960-015	EP2607960-016	EP2607960-017	-----
					Result	Result	Result	Result	----
EP080S: TPH(V)/BTEX Surrogates									
1.2-Dichloroethane-D4	17060-07-0	2	%		102	102	103	102	----
Toluene-D8	2037-26-5	2	%		98.4	99.3	103	98.3	----
4-Bromofluorobenzene	460-00-4	2	%		98.2	98.0	101	96.7	----



Analytical Results

Sub-Matrix: RINSATE
 (Matrix: WATER)

Sample ID

				WQA02_260512	WQA03_260512	----	----	----
Sampling date / time				12-May-2026 15:46	12-May-2026 15:48	----	----	----
Compound	CAS Number	LOR	Unit	EP2607960-010	EP2607960-011	-----	-----	-----
				Result	Result	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Arsenic	7440-38-2	0.001	mg/L	<0.001	<0.001	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	<0.0001	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	<0.001	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	<0.001	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	<0.001	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	<0.001	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	<0.005	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	<20	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	<50	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	<100	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	<50	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	<50	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	<20	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	<20	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	<100	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	<100	----	----	----
>C34 - C40 Fraction	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	<100	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	<100	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	<1	----	----	----
Toluene	108-88-3	2	µg/L	<2	<2	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	<2	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	<2	----	----	----



Analytical Results

Sub-Matrix: RINSATE
 (Matrix: WATER)

Sample ID

				WQA02_260512	WQA03_260512	----	----	----
Sampling date / time				12-May-2026 15:46	12-May-2026 15:48	----	----	----
Compound	CAS Number	LOR	Unit	EP2607960-010	EP2607960-011	-----	-----	-----
				Result	Result	----	----	----
EP080: BTEXN - Continued								
ortho-Xylene	95-47-6	2	µg/L	<2	<2	----	----	----
^ Total Xylenes	----	2	µg/L	<2	<2	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	<1	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	<5	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	102	102	----	----	----
Toluene-D8	2037-26-5	2	%	99.4	100	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	101	101	----	----	----



Analytical Results

Sub-Matrix: **SURFACE WATER**
 (Matrix: **WATER**)

Sample ID

				NC4_260512	----	----	----	----
Sampling date / time				12-May-2026 12:59	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2607960-004	-----	-----	-----	-----
Result					----	----	----	----
EA005P: pH by PC Titrator								
pH Value	----	0.01	pH Unit	7.50	----	----	----	----
EA010P: Conductivity by PC Titrator								
Electrical Conductivity @ 25°C	----	1	µS/cm	2730	----	----	----	----
EA015: Total Dissolved Solids dried at 180 ± 5 °C								
Total Dissolved Solids @180°C	----	10	mg/L	1670	----	----	----	----
EA045: Turbidity								
Turbidity	----	0.1	NTU	13.0	----	----	----	----
ED037P: Alkalinity by PC Titrator								
Hydroxide Alkalinity as CaCO3	----	1	mg/L	<1	----	----	----	----
Carbonate Alkalinity as CaCO3	3812-32-6	1	mg/L	<1	----	----	----	----
Bicarbonate Alkalinity as CaCO3	71-52-3	1	mg/L	82	----	----	----	----
Total Alkalinity as CaCO3	----	1	mg/L	82	----	----	----	----
ED040T: Total Major Anions								
Sulfate as SO4 2-	14808-79-8	1	mg/L	54	----	----	----	----
ED041G: Sulfate (Turbidimetric) as SO4 2- by DA								
Sulfate as SO4 - Turbidimetric	14808-79-8	1	mg/L	49	----	----	----	----
ED045G: Chloride by Discrete Analyser								
Chloride	16887-00-6	1	mg/L	836	----	----	----	----
ED093F: Dissolved Major Cations								
Calcium	7440-70-2	1	mg/L	48	----	----	----	----
Magnesium	7439-95-4	1	mg/L	78	----	----	----	----
Sodium	7440-23-5	1	mg/L	390	----	----	----	----
Potassium	7440-09-7	1	mg/L	10	----	----	----	----
ED093T: Total Major Cations								
Calcium	7440-70-2	1	mg/L	48	----	----	----	----
Magnesium	7439-95-4	1	mg/L	78	----	----	----	----
Sodium	7440-23-5	1	mg/L	397	----	----	----	----
Potassium	7440-09-7	1	mg/L	10	----	----	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				NC4_260512	----	----	----	----
Sampling date / time				12-May-2026 12:59	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2607960-004	-----	-----	-----	-----
Result				----	----	----	----	----
EG020F: Dissolved Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	<0.01	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	0.001	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	0.660	----	----	----	----
Selenium	7782-49-2	0.004	mg/L	<0.004	----	----	----	----
Iron	7439-89-6	0.05	mg/L	<0.05	----	----	----	----
EG020T: Total Metals by ICP-MS								
Aluminium	7429-90-5	0.01	mg/L	0.31	----	----	----	----
Arsenic	7440-38-2	0.001	mg/L	<0.001	----	----	----	----
Cadmium	7440-43-9	0.0001	mg/L	<0.0001	----	----	----	----
Chromium	7440-47-3	0.001	mg/L	<0.001	----	----	----	----
Copper	7440-50-8	0.001	mg/L	<0.001	----	----	----	----
Cobalt	7440-48-4	0.001	mg/L	0.002	----	----	----	----
Nickel	7440-02-0	0.001	mg/L	<0.001	----	----	----	----
Lead	7439-92-1	0.001	mg/L	<0.001	----	----	----	----
Zinc	7440-66-6	0.005	mg/L	<0.005	----	----	----	----
Manganese	7439-96-5	0.001	mg/L	0.746	----	----	----	----
Selenium	7782-49-2	0.004	mg/L	<0.004	----	----	----	----
Iron	7439-89-6	0.05	mg/L	1.49	----	----	----	----
EK055G: Ammonia as N by Discrete Analyser								
Ammonia as N	7664-41-7	0.01	mg/L	0.19	----	----	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				NC4_260512	----	----	----	----
Sampling date / time				12-May-2026 12:59	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2607960-004	-----	-----	-----	-----
Result					----	----	----	----
EK055G: Ammonium as N by DA								
Ammonium as N	14798-03-9_N	0.01	mg/L	0.19	----	----	----	----
EK057G: Nitrite as N by Discrete Analyser								
Nitrite as N	14797-65-0	0.01	mg/L	0.01	----	----	----	----
EK058G: Nitrate as N by Discrete Analyser								
Nitrate as N	14797-55-8	0.01	mg/L	0.01	----	----	----	----
EK059G: Nitrite plus Nitrate as N (NOx) by Discrete Analyser								
Nitrite + Nitrate as N	----	0.01	mg/L	0.02	----	----	----	----
EK061G: Total Kjeldahl Nitrogen By Discrete Analyser								
Total Kjeldahl Nitrogen as N	----	0.1	mg/L	1.0	----	----	----	----
EK062G: Total Nitrogen as N (TKN + NOx) by Discrete Analyser								
^ Total Nitrogen as N	----	0.1	mg/L	1.0	----	----	----	----
EK067G: Total Phosphorus as P by Discrete Analyser								
Total Phosphorus as P	----	0.01	mg/L	0.08	----	----	----	----
EK071G: Reactive Phosphorus as P by discrete analyser								
Reactive Phosphorus as P	14265-44-2	0.01	mg/L	<0.01	----	----	----	----
EK085F: Dissolved Sulfide as S2-								
Dissolved Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	----	----	----	----
EK085M: Sulfide as S2-								
Sulfide as S2-	18496-25-8	0.1	mg/L	<0.1	----	----	----	----
EN055: Ionic Balance								
ø Total Anions	----	0.01	meq/L	26.2	----	----	----	----
ø Total Cations	----	0.01	meq/L	26.0	----	----	----	----
ø Ionic Balance	----	0.01	%	0.39	----	----	----	----
EP068B: Organophosphorus Pesticides (OP)								
Dichlorvos	62-73-7	0.5	µg/L	<0.5	----	----	----	----
Demeton-S-methyl	919-86-8	0.5	µg/L	<0.5	----	----	----	----
Monocrotophos	6923-22-4	2.0	µg/L	<2.0	----	----	----	----
Dimethoate	60-51-5	0.5	µg/L	<0.5	----	----	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				NC4_260512	----	----	----	----
Sampling date / time				12-May-2026 12:59	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2607960-004	-----	-----	-----	-----
Result				----	----	----	----	----
EP068B: Organophosphorus Pesticides (OP) - Continued								
Diazinon	333-41-5	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos-methyl	5598-13-0	0.5	µg/L	<0.5	----	----	----	----
Parathion-methyl	298-00-0	2.0	µg/L	<2.0	----	----	----	----
Malathion	121-75-5	0.5	µg/L	<0.5	----	----	----	----
Fenthion	55-38-9	0.5	µg/L	<0.5	----	----	----	----
Chlorpyrifos	2921-88-2	0.5	µg/L	<0.5	----	----	----	----
Parathion	56-38-2	2.0	µg/L	<2.0	----	----	----	----
Pirimphos-ethyl	23505-41-1	0.5	µg/L	<0.5	----	----	----	----
Chlorfenvinphos	470-90-6	0.5	µg/L	<0.5	----	----	----	----
Bromophos-ethyl	4824-78-6	0.5	µg/L	<0.5	----	----	----	----
Fenamiphos	22224-92-6	0.5	µg/L	<0.5	----	----	----	----
Prothiofos	34643-46-4	0.5	µg/L	<0.5	----	----	----	----
Ethion	563-12-2	0.5	µg/L	<0.5	----	----	----	----
Carbophenothion	786-19-6	0.5	µg/L	<0.5	----	----	----	----
Azinphos Methyl	86-50-0	0.5	µg/L	<0.5	----	----	----	----
EP080/071: Total Petroleum Hydrocarbons								
C6 - C9 Fraction	----	20	µg/L	<20	----	----	----	----
C10 - C14 Fraction	----	50	µg/L	<50	----	----	----	----
C15 - C28 Fraction	----	100	µg/L	<100	----	----	----	----
C29 - C36 Fraction	----	50	µg/L	<50	----	----	----	----
^ C10 - C36 Fraction (sum)	----	50	µg/L	<50	----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
C6 - C10 Fraction	C6_C10	20	µg/L	<20	----	----	----	----
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	20	µg/L	<20	----	----	----	----
>C10 - C16 Fraction	----	100	µg/L	<100	----	----	----	----
>C16 - C34 Fraction	----	100	µg/L	<100	----	----	----	----



Analytical Results

Sub-Matrix: SURFACE WATER
 (Matrix: WATER)

Sample ID

				NC4_260512	----	----	----	----
Sampling date / time				12-May-2026 12:59	----	----	----	----
Compound	CAS Number	LOR	Unit	EP2607960-004	-----	-----	-----	-----
Result					----	----	----	----
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued								
>C34 - C40 Fraction	----	100	µg/L	<100	----	----	----	----
^ >C10 - C40 Fraction (sum)	----	100	µg/L	<100	----	----	----	----
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	100	µg/L	<100	----	----	----	----
EP080: BTEXN								
Benzene	71-43-2	1	µg/L	<1	----	----	----	----
Toluene	108-88-3	2	µg/L	<2	----	----	----	----
Ethylbenzene	100-41-4	2	µg/L	<2	----	----	----	----
meta- & para-Xylene	108-38-3 106-42-3	2	µg/L	<2	----	----	----	----
ortho-Xylene	95-47-6	2	µg/L	<2	----	----	----	----
^ Total Xylenes	----	2	µg/L	<2	----	----	----	----
^ Sum of BTEX	----	1	µg/L	<1	----	----	----	----
Naphthalene	91-20-3	5	µg/L	<5	----	----	----	----
EP204: Glyphosate and AMPA								
Glyphosate	1071-83-6	10	µg/L	<10	----	----	----	----
AMPA	1066-51-9	10	µg/L	<10	----	----	----	----
ED038P: Acidity by Auto Titrator								
Acidity as CaCO3	----	1	mg/L	4	----	----	----	----
EP068S: Organochlorine Pesticide Surrogate								
Dibromo-DDE	21655-73-2	0.5	%	90.7	----	----	----	----
EP068T: Organophosphorus Pesticide Surrogate								
DEF	78-48-8	0.5	%	77.0	----	----	----	----
EP080S: TPH(V)/BTEX Surrogates								
1,2-Dichloroethane-D4	17060-07-0	2	%	106	----	----	----	----
Toluene-D8	2037-26-5	2	%	98.6	----	----	----	----
4-Bromofluorobenzene	460-00-4	2	%	97.2	----	----	----	----



Surrogate Control Limits

Sub-Matrix: GROUNDWATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125

Sub-Matrix: RINSATE		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125

Sub-Matrix: SURFACE WATER		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	50	146
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	27	153
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	61	141
Toluene-D8	2037-26-5	73	126
4-Bromofluorobenzene	460-00-4	60	125

Inter-Laboratory Testing

Analysis conducted by ALS Sydney, NATA accreditation no. 825, site no. 10911 (Chemistry / Biology).

(WATER) EP204: Glyphosate and AMPA

Appendix E

Field sheets

Project Name:		BORR		Project Location:				PM Name:		G. Brophy	
Project Number:		60644386		Client:		SWGA		Fieldwork Staff Name:			
Confirm NAPL and groundwater levels by repeat measurements. All columns must be completed. If NAPL is not present in a well write 'ND' (Not Detected) in the relevant column.											
Field Data											
Well ID	Date (dd/mm/yy)	Time (24hr:mm)	PID Reading (ppm)	Depth to LNAPL (mBTOC)	Depth to Groundwater (mBTOC)	LNAPL Thickness (m)	Depth to DNAPL (mBTOC)	Total Well Depth (mBTOC)	DNAPL Thickness (m)	Comments (well condition, odour, NAPL colour and viscosity)	
14d	20/8/25	12:02	-	-	11.23						
145		12:03	-	-	9.08		-	-			
	21/08/25	15:12	-		5.76					Good, standpipe (quarry)	
1A					6.76						
1D	21/08/2025	15:47	-	-	17.88					Quarry	
13	21/08/2025	15:55	-	-	18.42					Quarry	
12	21/08/2025	16:01	-	-	25.69					Quarry (Pine View)	
MW07					10.32						
MB145											
14D											
MW08											
MB115					3.24						
11D	Filled/Plugged.										
Measurement Equipment							Notes/Comments				
Make & Model:			Supplier:			(PID) - photo ionisation detector; (ppm) - parts per million; (LNAPL) - light non-aqueous phase liquids; (DNAPL) - dense light non-aqueous phase liquid; (mBTOC) - metres below top of casing					
Serial No.:			Calibration Report Provided?								
Approval and Distribution											
Fieldwork Staff Signature				Date		Project Manager Signature				Date	
Distribution: Project Central File											

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: MW04			
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SBI/AO		Sample Date: 20.8.2025			
Well Development or Well Sampling Event? (circle)									
General Bore Information		Parameter Info.		Decontamination		Sampling Method			
Date of GW Level: 4.18	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☐ Low Flow Pump rate:		Hydrasleeve Size:	Monitoring sequence followed (number in order):		
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☒ Dedicated	Intake depth:		Hydrasleeve Type:			
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / ☒	☐ Disposable	☐ Bailer	☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging		
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☒ Peristaltic Pump		Hydrasleeve Install time:	Hydrasleeve in		
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole	☐ Other (specify)		☐ Waterra	Sampling Start Time:	Hydrasleeve out		
	Key Type (if applicable):	☒ Retrieved					Parameters		
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)	# purge volumes removed:	Total purged volume (L):					
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
15.49				3.22	3125	6.78	-5.4	18.6	clear water, No odour.
15.51				1.09	3056	6.77	10.1	18.7	
15.53				0.56	3056	6.78	10.0	18.7	light brown - clear - No odour.
15.55				0.41	3051	6.56	10.00	18.7	light brown - clear - No odour.
15.57				0.41	3051	6.56	10.00	18.7	light brown, 1 particle in water
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected			QA/QC Information		Field Comments		
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: MW05			
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SB/ AO		Sample Date: 20.8.25			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 20.8.25	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated		☐ Low Flow Pump rate:		Hydrasleeve Size:		
Depth to GW (m-pvc): 5.46	Screen Interval (m):	Chem Kit Model:	☒ Dedicated		Intake depth:		Hydrasleeve Type:		
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable		☐ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc):		
Depth to Product (m-pvc):	Cover Type (gatic/stick up): Gatic	(The correction to apply is probe dependent)	☐ Other (specify)		☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:		
Product Thickness (m):	Bore Locked (YES/NO): Y	Parameter method: ☐ Downhole			☐ Other (specify)		Sampling Start Time:		
	Key Type (if applicable): Allen	☒ Retrieved					Monitoring sequence followed (number in order):		
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:	Total purged volume (L):						
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
12:54				1.66		6.27	-87	20.3	No odour, Clear water
12:56				0.65		6.22	-107	20.7	"
12:58				0.48		6.21	-119	20.8	"
13:00				0.37	7.7	6.21	-127	20.8	"
13:02				0.66	9.64	6.8	-125	20.8	"
13:04				0.47	9.56	6.22	-127	20.5	"
13:06				0.40	9.57	6.21	-127	20.5	"
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected			QA/QC Information		Field Comments		
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: MW06			
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SB/ AO		Sample Date: 20.08.2025			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 20.8.25		Bore Radius (mm):		Chem Kit Serial No.:		☒ Decontaminated			
Depth to GW (m-pvc): 5.19		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / A		☒ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic/stick up): G		(The correction to apply is probe dependent)		☒ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO): Y		Parameter method: ☒ Downhole		☒ Peristaltic Pump ☒ Waterra			
		Key Type (if applicable): Allen.		☒ Retrieved		☒ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
12:38				3.7	165	7.50	-110	20.5	Clear water no odour
14:38				1.7	150	7.10	-162	20.7	
14:40				1.62	1078	6.67	-78	20.6	
14:42				1.31	583	6.21	-56	20.6	
14:44				1.21	424	6.01	-50.3	20.6	
14:46				1.14	327	5.95	-55.0	20.5	Discoloured with sediment see photo → 24g of sample plastic bottles for
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected			QA/QC Information		Field Comments		
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

Q4AN(EV)-405-FM1

Q4AN(EV)-405-FM1
FGM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: M/8A			
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SB/ AO		Sample Date: 20/08/2025			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 1-93		Bore Radius (mm):		Chem Kit Serial No.:		☐ Decontaminated			
Depth to GW (m-pvc):		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / N		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☒ Peristaltic Pump			
		Key Type (if applicable):		☒ Retrieved		☐ Waterra			
						☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Sampling Method									
Low Flow Pump rate:		Intake depth:		Hydrasleeve Size:		Monitoring sequence followed (number in order):			
☐ Bailer		☐ Hydrasleeve		Hydrasleeve Type:		Gauging			
☒ Peristaltic Pump		☐ Waterra		Hydrasleeve Install time:		Hydrasleeve in			
☐ Other (specify)				Sampling Start Time:		Hydrasleeve out			
						Parameters			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
16:21				2.31	1008	6.09	-216	18.7	odour (poss 56 1125) / clear
16:23				1.08	1002	6.05	-235	19.0	
16:25				6.53	997	6.04	-237	18.9	
16:27									
16:29				0.97	986	5.99	-230	19.	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)				Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: MW10			
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SB/ AO		Sample Date: 20.8.25			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 1.04	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated		☒ Low Flow Pump rate:		Hydrasleeve Size:		
Depth to GW (m-pvc): 1.04	Screen Interval (m):	Chem Kit Model:	☒ Dedicated		Intake depth:		Hydrasleeve Type:		
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable		☐ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc):		
Depth to Product (m-pvc):	Cover Type (gatic/stick up): <i>gatic</i>	(The correction to apply is probe dependent)	☐ Other (specify)		☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:		
Product Thickness (m):	Bore Locked (YES/NO): Y	Parameter method: ☐ Downhole			☐ Other (specify)		Sampling Start Time:		
	Key Type (if applicable): <i>Aulen</i>	☐ Retrieved					Parameters		
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
13:55				2.13	608	5.89	6.2	17.6	<i>N/A odour, clear water.</i>
13:57				1.08	394	6.10	-49	17.1	
13:59				1.33	316	6.19	-77	16.8	
14:01				1.44	319	6.19	-63	16.8	
14:03				1.52	332	6.19	-87	16.8	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)				Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: MW11			
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SB/ AO		Sample Date: 21.8.2025			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 0-5		Bore Radius (mm):		Chem Kit Serial No.:		☐ Decontaminated			
Depth to GW (m-pvc):		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / ☒ N		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO): ☒ YES		Parameter method: ☐ Downhole		☒ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable):		☒ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Sampling Method									
Intake depth:		Hydrasleeve Size:		Monitoring sequence followed (number in order):					
☒ Low Flow Pump rate:		Hydrasleeve Type:		Gauging					
☐ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc):		Hydrasleeve in					
☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:		Hydrasleeve out					
☐ Other (specify)		Sampling Start Time:		Parameters					
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
09:28				1.22	1387	6.76	-183	17.2	
09:29									
09:30				0.86	1365	6.76	-181	17.0	Light Brown colour, no odour
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)				Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date		Water inside well cap Area (check note 21/08/2025)	
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name:		BORR	Project Number:		60644386		PM Name:		G. Brophy	Bore ID:		MBH15		
Client:		SWGA	Project Location:		Bunbury		Fieldwork Staff:		SB/AO	Sample Date:		20-8-2025		
General Bore Information							Parameter Info.		Decontamination		Sampling Method		Hydrasleeve Info.	
Date of GW Level:			Bore Radius (mm):			Chem Kit Serial No.:			☒ Decontaminated		☒ Low Flow Pump rate:		Hydrasleeve Size:	
Depth to GW (m-pvc):			Screen Interval (m):			Chem Kit Model:			☒ Dedicated		Intake depth:		Hydrasleeve Type:	
Bore Depth (m-pvc):			Casing Radius (mm):			Corrected Redox: Y / N			☒ Disposable		☒ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc):	
Depth to Product (m-pvc):			Cover Type (gatic/stick up):			(The correction to apply is probe dependent)			☐ Other (specify)		☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:	
Product Thickness (m):			Bore Locked (YES/NO):			Parameter method: ☐ Downhole ☒ Retrieved					☐ Other (specify)		Sampling Start Time:	
Calculated bore volume (L):			Includes/ excludes bore annulus (circle)			# purge volumes removed:			Total purged volume (L):					
Water Quality Parameters														
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity					
16:52				0.9	832	6.22	-260	19.0	odour - 2(1/55)					
16:54				0.16	844	6.19	-275	19.0	"					
16:56				0.18	851	6.18	-280	19.6	"					
16:58				0.06	851	6.18	-283	19.01						
17:00														
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)														
Analytes Sampled for:			Bottles Collected					QA/QC Information		Field Comments				
Field Filtered:		Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)									
			x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic									
Approval and Distribution														
Fieldwork Staff Signature			Date	Checker Name and Signature				Date	MBH15 - 3.24 mlc/ MBHD - Filled					
Project Manager Signature			Date	Distribution: Project Central File										

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: MW 15			
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SB/ AO		Sample Date: 21.8.2023			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 15	Bore Radius (mm):	Chem Kit Serial No.: 208120527	☐ Decontaminated		☐ Low Flow Pump rate:		Hydrasleeve Size:		
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☒ Dedicated		Intake depth:		Hydrasleeve Type:		
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / ☒	☐ Disposable		☐ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc):		
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)		☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:		
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole			☐ Other (specify)		Sampling Start Time:		
	Key Type (if applicable):	☒ Retrieved					Parameters		
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
10:36				2.06	537	5.96	101.9	17.0	Dark Light Brown, 4000
10:38				1.26	657	5.98	85.9	17.7	
10:40				0.81	715	5.99	69.7	17.	
10:45				0.58	755	5.89	55.1	17.1	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected			QA/QC Information		Field Comments		
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date: 21/8/2023		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: MW25	
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SB/ AO		Sample Date: 21.8.25	
Well Development or Well Sampling Event? (circle)							

General Bore Information		Parameter Info.		Decontamination		Sampling Method		Hydrasleeve Info.	
Date of GW Level: 21.8.25	Bore Radius (mm):	Chem Kit Serial No.:	☒ Decontaminated	☒ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order): Gauging Hydrasleeve in Hydrasleeve out Parameters			
Depth to GW (m-pvc): 1.30	Screen Interval (m):	Chem Kit Model:	☒ Dedicated	Intake depth:	Hydrasleeve Type:				
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / 0	☒ Disposable	Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):				
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☒ Other (specify)	Peristaltic Pump ☒ Waterra	Hydrasleeve Install time:				
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☒ Downhole		☒ Other (specify)	Sampling Start Time:				
	Key Type (if applicable):	☒ Retrieved							
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			

Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
11:14				5.15	1181	5.8	87	16.4	
				4.98	1171	5.8	102	16.4	
				4.66	1134	5.85	112	16.4	
				4.79	984	5.8	110.9	16.2	
				4.83	1084	5.85	109	16	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected			QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc. MW25b - 7.4 mbgl WAO1; trip.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic				

Approval and Distribution			
Fieldwork Staff Signature	Date	Checker Name and Signature	Date
Project Manager Signature		Distribution: Project Central File	

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: MW# 27			
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SB/ AO		Sample Date:			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 21.08.25		Bore Radius (mm):		Chem Kit Serial No.:		☐ Decontaminated			
Depth to GW (m-pvc): 1.99		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / N		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☒ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable):		☒ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Sampling Method									
Low Flow Pump rate:		Hydrasleeve Size:		Monitoring sequence followed (number in order):					
Intake depth:		Hydrasleeve Type:		Gauging					
☐ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc):		Hydrasleeve in					
☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:		Hydrasleeve out					
☐ Other (specify)		Sampling Start Time:		Parameters					
Hydrasleeve Info.									
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
14.15				7.26	198.7	4.63	247	16.5	
17				6.85	197	4.22	255	16.4	Discolour, no odour brown
19				6.33	196	4.14	275	16.4	
21				6.22	194	4.15	279	16.4	
				6.45	195	4.16	281	16.4	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: MWS1			
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SB/ AO		Sample Date: 21.8.2015			
Well Development or Well Sampling Event? (circle)									
General Bore Information		Parameter Info.		Decontamination		Sampling Method			
Date of GW Level: 2-61	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☒ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order):			
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☒ Dedicated	Intake depth:	Hydrasleeve Type:				
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / ☒ N	☐ Disposable	☐ Bailer ☐ Hydrasleeve	Sampling Depth (m-pvc):	Gauging			
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☒ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in			
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole ☒ Retrieved		☐ Other (specify)	Sampling Start Time:	Hydrasleeve out			
	Key Type (if applicable):					Parameters			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
12:12				7.24	279	4.85	186.9	17.4	Light Brown, 40 odour pH $\rightarrow$ 4.79
12:14				6.36	246	4.73	244	17.8	
12:16				6.21	250	4.71	260	17.8	
12:18				5.8	266	4.79	269	17.3	
Acceptable Parameter Range:				$\pm 10\%$	$\pm 3\%$	± 0.05	± 10 mV	± 0.2 °C	$\pm 10\%$ turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected			QA/QC Information		Field Comments		
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60644386		PM Name: G. Brophy		Bore ID: M/W46			
Client: SWGA		Project Location: Bunbury		Fieldwork Staff: SB/ AO		Sample Date:			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 4.04	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated		☐ Low Flow Pump rate:		Hydrasleeve Size:		
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model:	☒ Dedicated		Intake depth:		Hydrasleeve Type:		
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / ☒ N	☐ Disposable		☐ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc):		
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)		☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:		
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole			☐ Other (specify)		Sampling Start Time:		
	Key Type (if applicable):	☒ Retrieved					Monitoring sequence followed (number in order):		
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)	# purge volumes removed:	Total purged volume (L):		Parameters			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
13:07				2.84	1513	6.47	41.9	19	Light Brown, W2 odour
13:09				1.34	1520	6.48	29.0	19.2	
13:11				1.10	1522	6.45	25.3	19.2	
13:13									
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected			QA/QC Information		Field Comments		
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

[illegible]

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: <u>GS</u>		Bore ID: <u>MW04</u>			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: <u>SB/JF</u>		Sample Date:			
Well Development or Well Sampling Event? (circle)									
General Bore Information		Parameter Info.		Decontamination		Sampling Method			
Date of GW Level: <u>6.11.25</u>	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated	☒ Low Flow Pump rate:	Hydrasleeve Size:		Monitoring sequence followed (number in order):		
Depth to GW (m-pvc): <u>4.011</u>	Screen Interval (m):	Chem Kit Model:	☒ Dedicated	Intake depth:		Hydrasleeve Type:			
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: <u>Y / N</u>	☐ Disposable	☐ Bailer	☐ Hydrasleeve	Sampling Depth (m-pvc): <u>1</u>	Gauging		
Depth to Product (m-pvc):	Cover Type (gatic stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☒ Peristaltic Pump	☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in		
Product Thickness (m):	Bore Locker (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)		Sampling Start Time:	Hydrasleeve out		
	Key Type (if applicable):	☒ Retrieved					<u>2</u> Parameters		
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		<u>4.01</u>		<u>0.58</u>	<u>2768</u>	<u>6.7</u>	<u>-151.6</u>	<u>18.6</u>	<u>Clear</u> <u>No odour.</u>
		<u>4.01</u>		<u>0.53</u>	<u>2799</u>	<u>6.8</u>	<u>-171</u>	<u>18.6</u>	
		<u>3.99</u>		<u>0.48</u>	<u>2800</u>	<u>6.8</u>	<u>-183</u>	<u>18.6</u>	
		<u>4</u>		<u>0.45</u>	<u>2780</u>	<u>6.8</u>	<u>-181</u>	<u>18.6</u>	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered: <u>X</u>	x 40 mL Vial (HCl)		x 60 mL Ferrous	<u>2</u> x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	<u>1</u>	x 100 mL Amber	<u>1</u> x 250 mL Plastic				
					<u>1</u> x 60 mL				
Approval and Distribution									
Fieldwork Staff Signature: <u>[Signature]</u>		Date: <u>6/11/25</u>		Checker Name and Signature: _____		Date: _____			
Project Manager Signature: _____		Date: _____		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: GBS		Bore ID: 6.11.2025			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: SB/JF		Sample Date: MW05			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 6.11.25		Bore Radius (mm):		Chem Kit Serial No.:		☐ Decontaminated			
Depth to GW (m-pvc): 5.061		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / N		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gate/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☒ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable):		☒ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Sampling Method									
Intake depth:		Hydrasleeve Size:		Monitoring sequence followed (number in order):					
		Hydrasleeve Type:		Sampling Depth (m-pvc):		Gauging			
		Hydrasleeve Install time:		Hydrasleeve in					
		Sampling Start Time:		Hydrasleeve out					
		Parameters							
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		5.05		0.38	1059	6.2	-140	20.5	
		5		0.33	1032	6.1	-138	20.5	
	4.98			0.35	1027	6.1	-141	20.5	
	4.98			0.31	995	6.1	-140	2.5	
Acceptable Parameter Range: ± 10% DO, ± 3% E.C., ± 0.05 pH, ± 10 mV Redox, ± 0.2 °C Temp, ± 10% turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	2 x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	1 x 250 mL Plastic					
				1 x 60mL					
Approval and Distribution									
Fieldwork Staff Signature		Date: 6.11.25		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: GS		Bore ID: MW06			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: SB/JF		Sample Date: 6.11.2025			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 6.11.25	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated		☒ Low Flow Pump rate:		Monitoring sequence followed (number in order):		
Depth to GW (m-pvc): 4.911	Screen Interval (m):	Chem Kit Model:	☒ Dedicated		Intake depth:				
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable		☐ Bailer ☐ Hydrasleeve		Hydrasleeve Size:		
Depth to Product (m-pvc):	Cover Type (gater stick up):	(The correction to apply is probe dependent)	☐ Other (specify)		☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Type:		
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole			☐ Other (specify)		Sampling Depth (m-pvc):		
	Key Type (if applicable):	☒ Retrieved					Hydrasleeve Install time:		
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:			Total purged volume (L):		Hydrasleeve out Parameters		
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		4.9		3.1	1662	6.5	-96	20.1	No odour Dark grey.
		4.9		3.2	1634	6.5	-97	20	
		4.88		3.2	1558	6.3	-105	19.9	
		4.9		3.11	1519	6.2	-108	19.9	
		4.9		3.1	1490	6.2	-108	19.9	
				3.1	1495	6.2	-107	19.9	
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	2	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	1	x 250 mL Plastic				
				1	x 60 mL				
Approval and Distribution									
Fieldwork Staff Signature:		Date: 6.11		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: GP		Bore ID: MW08A			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: SB/FF		Sample Date: 6.11.2025			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 6.11.25		Bore Radius (mm):		Chem Kit Serial No.:		☒ Decontaminated			
Depth to GW (m-pvc): 2.268		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / N		☒ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☒ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☒ Downhole		☒ Peristaltic Pump ☒ Waterra			
		Key Type (if applicable):		☐ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Well Development or Well Sampling Event? (circle)									
Monitoring sequence followed (number in order):									
1 Gauging									
Hydrasleeve in									
Hydrasleeve out									
2 Parameters									
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		2.25		0.5	1177	6	-221.8	18.7	
		2.50		0.38	1193	6	-225	18.6	
		2.31		0.38	1192	6	-225	18.7	
		2.30		0.35	1180	6	-222	18.7	
		2.5		0.36	1184	6	-225	18.7	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered: X	x 40 mL Vial (HCl) ☐ x 60 mL Ferrous ☒ x 60 mL metals (HNO ₃) ☐ x 40 mL Vial (H ₂ SO ₄) ☐ x 100 mL Amber ☐ x 250 mL Plastic ☐ 60mL						Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
Approval and Distribution									
Fieldwork Staff Signature		6/11/25		Date		Checker Name and Signature		Date	
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: <i>GS</i>		Bore ID: <i>MW10</i>			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: <i>SB/TF</i>		Sample Date: <i>7.11.2025</i>			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: <i>7.11</i>		Bore Radius (mm):		Chem Kit Serial No.:		☐ Decontaminated			
Depth to GW (m-pvc): <i>1.123</i>		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: <i>Y / (N)</i>		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (<i>8</i> stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO): <i>YES</i>		Parameter method: ☐ Downhole		☒ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable): <i>Allen</i>		☒ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Well Development or Well Sampling Event? (circle)									
Sampling Method									
Hydrasleeve Info.									
Monitoring sequence followed (number in order):									
Hydrasleeve Size:									
Hydrasleeve Type:									
Sampling Depth (m-pvc): <i>1</i>									
Hydrasleeve Install time:									
Sampling Start Time:									
Hydrasleeve out									
Parameters									
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		<i>1.12</i>		<i>0.82</i>	<i>769</i>	<i>6.2</i>	<i>-171</i>	<i>17.6</i>	
		<i>1.1</i>		<i>0.57</i>	<i>763</i>	<i>6</i>	<i>-181</i>	<i>17.7</i>	<i>Clear</i>
		<i>1.1</i>		<i>0.49</i>	<i>725</i>	<i>5.9</i>	<i>-175</i>	<i>17.7</i>	<i>No odour</i>
				<i>0.41</i>	<i>555</i>	<i>5.9</i>	<i>-195</i>	<i>17.7</i>	
				<i>0.38</i>	<i>509</i>	<i>5.9</i>	<i>-185</i>	<i>17.7</i>	
				<i>0.39</i>	<i>504</i>	<i>5.9</i>	<i>-197</i>	<i>17.7</i>	
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered: <i>A</i>	x 40 mL Vial (HCl)	x 60 mL Ferrous	<i>2</i>	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	<i>1</i>	x 250 mL Plastic				
				<i>1</i>	<i>x 60 mL</i>				
Approval and Distribution									
Fieldwork Staff Signature <i>[Signature]</i>		Date <i>6.11</i>		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: GB		Bore ID: MW11			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: SB/JF		Sample Date: 7.11.2025			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level:		Bore Radius (mm):		Chem Kit Serial No.:		☐ Decontaminated			
Depth to GW (m-pvc): 0.710		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / N		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gate/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☒ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable):		☒ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Well Development or Well Sampling Event? (circle)									
Sampling Method									
Hydrasleeve Info.									
Monitoring sequence followed (number in order):									
1 Gauging									
Hydrasleeve out									
2 Parameters									
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		0.7		0.61	2110	6.7	-192	18	Dark yellow Murky
		0.72		0.56	2115	6.7	-198	18	
		0.73		0.43	2100	6.7	-206	18	
		0.72		0.39	2076	6.7	-209	18	
				0.38	2069	6.7	-209	18	
Acceptable Parameter Range: $\pm 10\%$ $\pm 3\%$ ± 0.05 ± 10 mV ± 0.2 °C $\pm 10\%$ turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered: X	x 40 mL Vial (HCl)	x 60 mL Ferrous	2	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	1	x 250 mL Plastic				
				1	x 60 mL				
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: GB		Bore ID: MW15			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: JB/JF		Sample Date: 6.11.2025			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 6.11.25		Bore Radius (mm):		Chem Kit Serial No.:		☐ Decontaminated			
Depth to GW (m-pvc): 1.125		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / N		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☒ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable):		☒ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		1.12		0.57	1613	6.1	-179	18.8	light yellow clear No odour
		1.15		0.46	1600	6.1	-180	18.8	
		1.18		0.45	1594	6.1	-181	18.8	
		1.18		0.42	1581	6.1	-182	18.8	
				0.43	1564	6.05	-182	18.8	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered: ☒	x 40 mL Vial (HCl)	x 60 mL Ferrous	7	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	1	x 250 mL Plastic				
					1 x 40 mL				
Approval and Distribution									
Fieldwork Staff Signature		Date: 6.11.25		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: GB		Bore ID: MW25			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: SB/JF		Sample Date: 6.11.25			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 6.11.25		Bore Radius (mm):		Chem Kit Serial No.:		☐ Decontaminated			
Depth to GW (m-pvc): 6.425		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / ①		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gate/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☒ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable):		☒ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Sampling Method									
Low Flow Pump rate:		Intake depth:		Hydrasleeve Size:		Monitoring sequence followed (number in order):			
Bailer		Hydrasleeve		Hydrasleeve Type:		Gauging			
Peristaltic Pump		Waterra		Hydrasleeve Install time:		Hydrasleeve in			
Other (specify)				Sampling Start Time:		Hydrasleeve out			
						Parameters			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		6.42		2.51	4141	5.2	-92	19.1	Clear No odour
		6.42		2.04	4210	5.3	-122	19.2	
		6.47		1.67	4238	5.3	-135	19.1	
		6.48		1.66	4246	5.3	-141	19.2	
				1.61	4255	5.3	-146	19.2	
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 40 mL metals (HNO ₃)	Dup.		Bore volume calculation, bore condition, fate of tubing, redox correction etc. MW25-b : 1.901		
	α	x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
				x 60 mL					
Approval and Distribution									
Fieldwork Staff Signature		Date: 6.11		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: GB		Bore ID: MW27			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: SB/TE		Sample Date: 7.11.25			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 7.11.25	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated		Sampling Method		Hydrasleeve Info.		
Depth to GW (m-pvc): 2.107	Screen Interval (m):	Chem Kit Model:	☒ Dedicated		Low Flow Pump rate:		Hydrasleeve Size:		
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable		Intake depth:		Hydrasleeve Type:		
Depth to Product (m-pvc):	Cover Type (gate/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)		☒ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc):		
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole	☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:		Gauging		
	Key Type (if applicable):	☒ Retrieved	☐ Other (specify)		Sampling Start Time:		Hydrasleeve in		
Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:	Total purged volume (L):				Parameters		
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		2.1		1.10	348	4.7	-52.8	17.7	Brown
		2.1		0.63	332	4.6	-57	17.6	murky
		2.2		0.54	323	4.5	-65	17.6	H ₂ S aroma.
		2.1		0.46	322	4.5	-65	17.6	
				0.47	322	4.5	-64	17.6	
Acceptable Parameter Range: $\pm 10\%$ $\pm 3\%$ ± 0.05 ± 10 mV ± 0.2 °C $\pm 10\%$ turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)				Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
				x 60 mL					
Approval and Distribution									
Fieldwork Staff Signature		Date: 7/11/25		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name:		Bore ID: MW3			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff:		Sample Date: 6/11/25			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 6/11/25		Bore Radius (mm):		Chem Kit Serial No.:		☐ Decontaminated			
Depth to GW (m-pvc): 2.598		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / N		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☐ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable):		☒ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
0915		2.59		3.06	183	5.05	149.4	18	Light brown No odour Clear
		2.61		2.83	164	4.91	162.8	18	
		2.62		2.77	167	4.88	168.3	18	
		2.67		2.77	170	4.88	169.2	18	
Acceptable Parameter Range: $\pm 10\%$ $\pm 3\%$ ± 0.05 ± 10 mV ± 0.2 °C $\pm 10\%$ turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered: ☒	x 40 mL Vial (HCl)	x 60 mL Ferrous	2 x 60 mL metals (HNO ₃)				Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	1 x 250 mL Plastic					
				1 x 60mL					
Approval and Distribution									
Fieldwork Staff Signature		Date: 6.11.25		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: G-B		Bore ID: MW46			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: SB/TF		Sample Date: 6.11.2025			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 6/11/25	Bore Radius (mm):	Chem Kit Serial No.:	☐ Decontaminated		Sampling Method		Hydrasleeve Info.		
Depth to GW (m-pvc): 3.716	Screen Interval (m):	Chem Kit Model:	☒ Dedicated		Intake depth:		Monitoring sequence followed (number in order):		
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☐ Disposable		☐ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc): 1		
Depth to Product (m-pvc):	Cover Type (gauge stick up):	(The correction to apply is probe dependent)	☐ Other (specify)		☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:		
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole			☐ Other (specify)		Sampling Start Time:		
	Key Type (if applicable):	☒ Retrieved					Parameters		
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		3.71		0.61	1134	6.4	3.8	28.9	
		3.65		0.51	1132	6.5	3.7	19	
		3.6		0.36	1130	6.45	3.7	18.9	
		3.6		0.35	1129	6.45	3.9	19	
		3.54		0.3	1129	6.45	3.4	18.9	
Acceptable Parameter Range: $\pm 10\%$ $\pm 3\%$ ± 0.05 ± 10 mV ± 0.2 °C $\pm 10\%$ turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered: ☒	x 40 mL Vial (HCl)	x 60 mL Ferrous	2	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	1	x 250 mL Plastic				
				1	X60m				
Approval and Distribution									
Fieldwork Staff Signature		Date: 6.11.25		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR		Project Number: 60737273		PM Name: <i>GP</i>		Bore ID: <i>MB115</i>			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff: <i>SB/JF</i>		Sample Date: <i>6.11.2025</i>			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: <i>6.11.25</i>		Bore Radius (mm):		Chem Kit Serial No.:		☒ Decontaminated			
Depth to GW (m-pvc): <i>3.311</i>		Screen Interval (m):		Chem Kit Model:		☐ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / <i>N</i>		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☒ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO): <i>NO</i>		Parameter method: ☐ Downhole		☐ Other (specify)			
		Key Type (if applicable):		☒ Retrieved					
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
		<i>3.31</i>		<i>1.49</i>	<i>794</i>	<i>6.5</i>	<i>-120</i>	<i>19.4</i>	
		<i>3.27</i>		<i>1.34</i>	<i>786</i>	<i>6.5</i>	<i>-110</i>	<i>19.2</i>	
		<i>3.25</i>		<i>1.22</i>	<i>783</i>	<i>6.45</i>	<i>-96</i>	<i>19.1</i>	
		<i>3.2</i>		<i>1.18</i>	<i>783</i>	<i>6.45</i>	<i>-94</i>	<i>19.1</i>	
		<i>3.22</i>		<i>1.33</i>	<i>782</i>	<i>6.45</i>	<i>-95</i>	<i>19.1</i>	
Acceptable Parameter Range:				$\pm 10\%$	$\pm 3\%$	± 0.05	± 10 mV	± 0.2 °C	$\pm 10\%$ turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered: <i>X</i>	x 40 mL Vial (HCl)	x 60 mL Ferrous	<i>2</i>	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	<i>1</i>	x 250 mL Plastic				
				<i>1</i>	<i>100mL</i>				
Approval and Distribution									
Fieldwork Staff Signature: <i>[Signature]</i>		Date: <i>6.11</i>		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR Post Construction Monitor		Project Number: 60737273		PM Name: AG/ GB		Bore ID: MW04			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff:		Sample Date: 10 Feb 26			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 4.650m		Bore Radius (mm):		Chem Kit Serial No: 23F10872		☒ Decontaminated			
Depth to GW (m-pvc): 10.2.26		Screen Interval (m):		Chem Kit Model: X51		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / 0		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☒ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable):		☒ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Sampling Method									
Intake depth:		Hydrasleeve Size:		Monitoring sequence followed (number in order):					
Bailer		Hydrasleeve Type:		Sampling Depth (m-pvc):		1 Gauging			
Hydrasleeve		Hydrasleeve Install time:		Hydrasleeve in					
Sampling Start Time:		Hydrasleeve out		2 Parameters					
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
13:20				0.60	5418	6.44	-54.4	20.7	
13:22				0.46	5481	6.47	-60.3	20.7	
13:24				0.26	5511	6.50	-73.3	20.1	
13:26				0.23	5500	6.50	-75.9	20.1	
13:28				0.20	5495	6.51	-81.6	20.2	
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered: ☒	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

[illegible]

Q4AN(EV)-405-FM1

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

Q4AN(EV)-405-FM1

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

Q4AN(EV)-405-FM1

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR Post Construction Monitor		Project Number: 60737273		PM Name: AG/GB		Bore ID: MW10			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff:		Sample Date: 11-2-2016			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 1.850	Bore Radius (mm):	Chem Kit Serial No.:	☒ Decontaminated		☒ Low Flow Pump rate:		Monitoring sequence followed (number in order):		
Depth to GW (m-pvc): 1.850	Screen Interval (m):	Chem Kit Model:	☒ Dedicated		Intake depth:				
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☒ Disposable		☐ Bailer ☐ Hydrasleeve		Hydrasleeve Size:		
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)		☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Type:		
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole			☐ Other (specify)		Sampling Depth (m-pvc):		
	Key Type (if applicable):	☒ Retrieved					Hydrasleeve Install time:		
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)	# purge volumes removed:	Total purged volume (L):		Sampling Start Time:			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
9:12				1.03	842	5.85	-166.1	22.5	Clear, no odour
9:14				0.15	830	5.81	-149.2	22.8	
9:16				0.11	824	5.79	-141.9	22.9	
9:18				0.08	793	5.76	-129.1	23.0	
9:20				0.08	770	5.73	-130.2	23.0	
9:22		1.83		0.08	730	5.69	-135.6	23.0	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected			QA/QC Information		Field Comments		
Field Filtered:	Unfiltered: ☒	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

Q4AN(EV)-405-FM1

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR Post Construction Monitoring		Project Number: 60737273		PM Name: AG/ GB		Bore ID: MB115			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff:		Sample Date:			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 10.2.2021		Bore Radius (mm):		Chem Kit Serial No.:		☒ Decontaminated			
Depth to GW (m-pvc): 4.370		Screen Interval (m):		Chem Kit Model:		☒ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / N		☒ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☒ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☒ Downhole		☒ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable):		☒ Retrieved		☒ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
				6.21	837	6.48	-23.9	22	Brown, clear,
				6.18	844	6.47	-21.2	22.1	
				6.11	851	6.47	-19.8	22.1	
				6.15	847	6.48	-22.2	22	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)				Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

Q4AN(EV)-405-FM1

Q4AN(EV)-405-FM1
 FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
 Revision 2 July 12, 2016

Q4AN(EV)-405-FM1

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

Q4AN(EV)-405-FM1

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

Q4AN(EV)-405-FM1

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR Post Construction Monitor		Project Number: 60737273		PM Name: AG/ GB		Bore ID: MWS1			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff:		Sample Date: 10 Feb 20			
General Bore Information				Decontamination		Well Development or Well Sampling Event? (circle)			
Date of GW Level: 10.02.2016		Bore Radius (mm):		☐ Decontaminated		☒ Low Flow Pump rate:			
Depth to GW (m-pvc): 3.165		Screen Interval (m):		☒ Dedicated		Intake depth:			
Bore Depth (m-pvc):		Casing Radius (mm): 50mm		☐ Disposable		☐ Bailer ☐ Hydrasleeve			
Depth to Product (m-pvc):		Cover Type (gatic/stick up):		☐ Other (specify)		☒ Peristaltic Pump ☐ Waterra			
Product Thickness (m):		Bore Locked (YES/NO):		☐ Downhole		☐ Other (specify)			
		Key Type (if applicable):		☒ Retrieved					
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
10:07				2.67	312.3	5.34	164.1	22.8	No odours, yellow, murky
10:09				2.61	310.1	5.31	161.1	22.8	
10:11				1.99	320.5	5.31	157.2	22.8	
10:13				1.47	308.4	5.27	152.1	22.7	
10:15				1.12	307.5	5.25	146.1	22.6	
10:17				1.05	306.8	5.26	139.5	23.0	
10:19				1.02	309.9	5.28	132.4	23.3	
10:21				0.94	319.7	5.28	125.3	23.4	
10:23				0.89	327.0	5.28	121.1	23.5	
10:25		3.17		0.77	330.0	5.30	112.8	23.5	
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered: ☒	☒ x 40 mL Vial (HCl) ☒ x 60 mL Ferrous ☐ x 60 mL metals (HNO ₃) ☒ x 40 mL Vial (H ₂ SO ₄) ☒ x 100 mL Amber ☐ x 250 mL Plastic						Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
Approval and Distribution									
Fieldwork Staff Signature		10.2.20		Date		Checker Name and Signature		Date	
Project Manager Signature		Date		Distribution: Project Central File					

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

[illegible]

Q4AN(EV)-405-FM1

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

Q4AN(EV)-405-FM1
FQM - Groundwater Sampling and Purging Record (Q4AN(EV)-405-FM1)
Revision 2 July 12, 2016

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: BORR Post Construction Monit		Project Number: 60737273		PM Name: AG/ GB		Bore ID:			
Client: MRWA		Project Location: Bunbury		Fieldwork Staff:		Sample Date:			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level:		Bore Radius (mm):		Chem Kit Serial No.:		☐ Decontaminated			
Depth to GW (m-pvc):		Screen Interval (m):		Chem Kit Model:		☐ Dedicated			
Bore Depth (m-pvc):		Casing Radius (mm):		Corrected Redox: Y / N		☐ Disposable			
Depth to Product (m-pvc):		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m):		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☐ Peristaltic Pump ☐ Waterra			
		Key Type (if applicable):		☐ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Well Development or Well Sampling Event? (circle)									
General Bore Information				Sampling Method		Hydrasleeve Info.			
				Low Flow Pump rate:		Hydrasleeve Size:			
				Intake depth:		Hydrasleeve Type:			
				☐ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc):			
				☐ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:			
				☐ Other (specify)		Sampling Start Time:			
						Parameters			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
									RUNNYMEDE
									mbcl
									1A Dry 7.23 m deep
									10 17.805
									13 18.295
									12 25.625
Acceptable Parameter Range: $\pm 10\%$ $\pm 3\%$ ± 0.05 ± 10 mV ± 0.2 °C $\pm 10\%$ turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)				Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

Q4AN(EV)-011-FM1

[illegible]

Approval and Distribution	
_____	_____
Fieldwork Staff Signature	Date
_____	_____
Project Manager Signature	Date
Distribution: Project Central File	

RUNNY MEAD E

[illegible]

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: <u>BORR Ampol Camarvon EOS GME</u>		Project Number: <u>60788024 60644386</u>		PM Name: <u>ER AB</u>		Bore ID: <u>MW08A</u>			
Client: <u>Ampol MRWA</u>		Project Location: <u>595 Robinson St, Camarvon WA</u>		Fieldwork Staff: <u>HRG / TM</u>		Sample Date: _____			
Well Development or Well Sampling Event? (circle)									
General Bore Information		Parameter Info.		Decontamination		Sampling Method			
Date of GW Level: <u>13/05/26</u>	Bore Radius (mm): <u>150</u>	Chem Kit Serial No. <u>23510287</u>	☒ Decontaminated	☒ Low Flow Pump rate: <u>25%</u>		Hydrasleeve Size: _____	Monitoring sequence followed (number in order):		
Depth to GW (m-pvc): <u>3.885</u>	Screen Interval (m): <u>-</u>	Chem Kit Model: <u>V61 P/c</u>	☒ Dedicated	Intake depth: <u>-</u>		Hydrasleeve Type: _____			
Bore Depth (m-pvc): _____	Casing Radius (mm): <u>50</u>	Corrected Redox: <u>Y / (N)</u>	☒ Disposable	☐ Baller	☐ Hydrasleeve	Sampling Depth (m-pvc): _____	☒ Gauging		
Depth to Product (m-pvc): _____	Cover Type <u>(gale) stick up</u> :	(The correction to apply is probe dependent)	☐ Other (specify) _____	☒ Peristaltic Pump	☐ Waterra	Hydrasleeve Install time: _____	Hydrasleeve in		
Product Thickness (m): _____	Bore Locked (YES/NO): _____	Parameter method: ☐ Downhole		☐ Other (specify) _____		Sampling Start Time: _____	Hydrasleeve out		
	Key Type (if applicable): <u>Allen</u>	☒ Retrieved					☒ Parameters		
Calculated bore volume (L): _____		Includes/ excludes bore annulus (circle) _____		# purge volumes removed: _____		Total purged volume (L): _____			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
<u>11:58</u>	<u>0.5</u>	<u>3.85</u>	<u>25</u>	<u>0.09</u>	<u>541</u>	<u>6.07</u>	<u>-120.1</u>	<u>20.8</u>	
<u>12:00</u>	<u>1</u>	<u>↓</u>		<u>0.16</u>	<u>576</u>	<u>6.08</u>	<u>-131.2</u>	<u>20.9</u>	
<u>12:02</u>	<u>1.5</u>	<u>↓</u>		<u>0.81</u>	<u>551</u>	<u>6.09</u>	<u>-12.6</u>	<u>21.1</u>	
<u>12:04</u>	<u>2</u>	<u>↓</u>		<u>0.02</u>	<u>551</u>	<u>6.06</u>	<u>-142.3</u>	<u>20.7</u>	
<u>12:06</u>	<u>2.5</u>	<u>↓</u>		<u>-0.02</u>	<u>550</u>	<u>6.06</u>	<u>-153.1</u>	<u>20.7</u>	
<u>12:08</u>	<u>3</u>	<u>↓</u>		<u>-0.04</u>	<u>549</u>	<u>6.06</u>	<u>-156.2</u>	<u>20.7</u>	<u>Clear, colourless, no odour</u>
<u>DO in the neg hole, Ores still used</u>									
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered: <u>/</u>	Unfiltered: <u>Nil</u>	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic					
		x 60 mL purple		x 125 mL yellow					
Approval and Distribution									
Fieldwork Staff Signature: <u>C. Mandy</u>		Date: <u>13/05/26</u>		Checker Name and Signature: <u>16. RB</u>		Date: <u>13/05/26</u>			
Project Manager Signature: _____		Date: _____		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

BORR

Project Name: Ampol Camarvon EoS GME		Project Number: 60788024 60844386		PM Name: PR GB		Bore ID: MB115	
Client: Ampol MRWA		Project Location: 595 Robinson St, Camarvon WA		Fieldwork Staff: HRG / TM		Sample Date: 13/05/26	
Well Development or Well Sampling Event? (circle)							

General Bore Information		Parameter Info.		Decontamination		Sampling Method		Hydrasleeve Info.	
Date of GW Level: 13/05/26	Bore Radius (mm): -	Chem Kit Serial No.: 23F102782	☒ Decontaminated	☒ Low Flow Pump rate: 20%	Intake depth:		Hydrasleeve Size:	Monitoring sequence followed (number in order): 1 Gauging Hydrasleeve in Hydrasleeve out 2 Parameters	
Depth to GW (m-pvc): 4.955	Screen Interval (m): -	Chem Kit Model: V61 Pro	☒ Dedicated				Hydrasleeve Type:		
Bore Depth (m-pvc): -	Casing Radius (mm): 50	Corrected Redox: Y / N	☒ Disposable	☐ Bailor	☐ Hydrasleeve		Sampling Depth (m-pvc):		
Depth to Product (m-pvc): -	Cover Type (gatic/stick up): 50	(The correction to apply is probe dependent)	☐ Other (specify)	☒ Peristaltic Pump	☐ Waterra		Hydrasleeve Install time:		
Product Thickness (m): -	Bore Locked (YES/NO): NO	Parameter method: ☐ Downhole		☐ Other (specify)			Sampling Start Time:		
	Key Type (if applicable):	☒ Retrieved							
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			

Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
11:12	0.5	4.957	30%	0.70	875	6.35	54.7	21.6	
11:14	1.0	-		0.18	841	6.31	16.9	21.6	
11:16	1.5	4.960		0.03	813	6.29	-15.3	21.6	
11:18	2.0			0.03	811	6.29	-30.9	21.5	
11:20	2.5			0.01	810	6.30	-46.9	21.5	
11:22	3.0			0.02	814	6.30	-58.1	21.4	
11:24	3.5			0.03	813	6.30	-64.7	21.3	Brown, clear, organic odour
				Redox not stabilised					

Acceptable Parameter Range: ± 10% DO, ± 3% E.C., ± 0.05 pH, ± 10 mV Redox, ± 0.2 °C Temp, ± 10% turbidity (if using a turbidity meter)

Analytes Sampled for:		Bottles Collected		QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	1 x 60 mL metals (HNO ₃)	Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		2 x 40 mL Vial (H ₂ SO ₄)	1 x 100 mL Amber	1 x 250 mL Plastic			
		1 x 60 mL purple		1 x 125 mL Yellow			
Approval and Distribution							
Fieldwork Staff Signature: 16.13		Date: 13/05/26		Checker Name and Signature		Date	
Project Manager Signature		Date		Distribution: Project Central File			

MB115 grouted

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

BDRR						Bore ID:	MW07				
Project Name:		Ampol Camarvon EGS GME		Project Number:	60788024 60644386	PM Name:	PK QB	Sample Date:	18/05/26		
Client:		Ampol MRWA		Project Location:	595 Robinson St, Camarvon WA	Fieldwork Staff:	HRG / TM	Well Development or Well Sampling Event? (circle)			
General Bore Information				Parameter Info.		Decontamination		Sampling Method		Hydrasleeve Info.	
Date of GW Level:	13/05/26	Bore Radius (mm):	150	Chem Kit Serial No.:	23F102872	☒ Decontaminated	☐ Low Flow Pump rate:	Hydrasleeve Size:	Monitoring sequence followed (number in order): 1 Gauging 2 Parameters		
Depth to GW (m-pvc):	10.126	Screen Interval (m):	-	Chem Kit Model:	VSI Pro	☒ Dedicated	Intake depth: -	Hydrasleeve Type:			
Bore Depth (m-pvc):	-	Casing Radius (mm):	50	Corrected Redox:	Y / N	☒ Disposable	☒ Sailer	☐ Hydrasleeve	Sampling Depth (m-pvc):		
Depth to Product (m-pvc):	-	Cover Type (gallo stick up):	(The correction to apply is probe dependent)	Parameter method: ☐ Downhole ☒ Retrieved		☐ Other (specify)	☐ Peristaltic Pump	☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in	
Product Thickness (m):	-	Bore Locked (YES/NO):				☐ Other (specify)	☐ Other (specify)	Sampling Start Time:	Hydrasleeve out		
Key Type (if applicable):		Allen									
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):					
Water Quality Parameters											
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity		
10:33	0.5	-	-	3.02	2098	5.60	128.9	20.3	Roots Brown, turbid, no odour		
Acceptable Parameter Range:						± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments			
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)			Bore volume calculation, bore condition, fate of tubing, redox correction etc. 				
	All	2 x 40 mL Vial (H ₂ SO ₄)	x 100 mL Amber	x 250 mL Plastic							
		1 x 60 mL purple		1 x 25 mL yellow							
Approval and Distribution											
Fieldwork Staff Signature		Date		Checker Name and Signature		Date					
Project Manager Signature		Date		Distribution: Project Central File							

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: <u>BORR</u>		Project Number: <u>60788024 60644386</u>		PM Name: <u>EK GB</u>		Bore ID: <u>MW10</u>			
Client: <u>Ampol MRWA</u>		Project Location: <u>595 Robinson St, Camarvon WA</u>		Fieldwork Staff: <u>HRG / TM</u>		Sample Date: <u>13/05/26</u>			
Well Development or Well Sampling Event? (circle)									
General Bore Information		Parameter Info.		Decontamination		Sampling Method			
Date of GW Level: <u>13/05/26</u>	Bore Radius (mm): <u>150</u>	Chem Kit Serial No.: <u>23F102872</u>	☒ Decontaminated	☒ Low Flow Pump rate: <u>30%</u>		Hydrasleeve Size:	Monitoring sequence followed (number in order):		
Depth to GW (m-pvc): <u>2.003</u>	Screen Interval (m):	Chem Kit Model: <u>YS 190</u>	☒ Dedicated	Intake depth: <u>-</u>		Hydrasleeve Type:			
Bore Depth (m-pvc): <u>-</u>	Casing Radius (mm): <u>50</u>	Corrected Redox: <u>Y / N</u>	☒ Disposable	☐ Bailor	☐ Hydrasleeve	Sampling Depth (m-pvc): <u>1</u>	Gauging		
Depth to Product (m-pvc): <u>-</u>	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☒ Peristaltic Pump	☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in		
Product Thickness (m): <u>-</u>	Bore Locked (YES/NO):	Parameter method: ☐ Downhole		☐ Other (specify)		Sampling Start Time:	Hydrasleeve out		
	Key Type (if applicable): <u>Allen</u>	☒ Retrieved					<u>2</u> Parameters		
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
09:26	0.5	2.007	30%	0.51	1430	6.57	-70.2	20.9	
09:28	1.0	-		0.34	955	6.05	-14.1	21.0	
09:30	1.5	2.009		0.30	792	5.90	-6.9	21.1	
09:32	2.0	-		0.28	788	5.88	-8.9	21.1	
09:34	2.5	2.010		0.24	752	5.82	-19.0	21.1	
09:36	3.0	↓		0.22	737	5.80	-25.2	21.1	
09:38	3.5	↓		0.22	730	5.79	-28.9	21.2	Clear, colourless, no odour
← STABILISED →									
Acceptable Parameter Range:		± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)		
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)				Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
	<u>All</u>	2 x 40 mL Vial (H ₂ SO ₄)	1 x 100 mL Amber	1 x 250 mL Plastic					
		1 x 60 mL purple		1 x 125 mL yellow					
Approval and Distribution									
Fieldwork Staff Signature: <u>16 GB</u>		Date: <u>13/05/26</u>		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: <u>BORR</u> <u>Ampel Camarvon FOS GME</u>		Project Number: <u>60788024</u> <u>60644386</u>		PM Name: <u>FK GB</u>		Bore ID: <u>MW11</u>			
Client: <u>Ampel MRINA</u>		Project Location: <u>595 Robinson St, Camarvon WA</u>		Fieldwork Staff: <u>HRG / TM</u>		Sample Date: <u>13/05/26</u>			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: <u>13/05/26</u>	Bore Radius (mm): <u>190</u>	Chem Kit Serial No.: <u>23F102872</u>	☒ Decontaminated		Sampling Method: <u>Low Flow Pump rate: 30%</u>		Hydrasleeve Info.		
Depth to GW (m-pvc): <u>1.486</u>	Screen Interval (m): <u>-</u>	Chem Kit Model: <u>YSI Pro</u>	☒ Dedicated		Intake depth: <u>-</u>		Hydrasleeve Size: <u>Monitoring sequence followed (number in order):</u>		
Bore Depth (m-pvc): <u>-</u>	Casing Radius (mm): <u>50</u>	Corrected Redox: <u>Y / N</u>	☐ Disposable		☐ Bailor ☐ Hydrasleeve		Hydrasleeve Type: <u>1 Gauging</u>		
Depth to Product (m-pvc): <u>-</u>	Cover Type (gatic/stick up): <u>(gatic)</u>	(The correction to apply is probe dependent)	☐ Other (specify)		☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time: <u>Hydrasleeve in</u>		
Product Thickness (m): <u>-</u>	Bore Locked (YES/NO): <u>-</u>	Parameter method: ☐ Downhole ☒ Retrieved			☐ Other (specify)		Sampling Start Time: <u>Hydrasleeve out</u>		
Key Type (if applicable): <u>Allen</u>						<u>2</u> Parameters			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
09:00	0.5	-	30%	0.97	28628	7.26	-78.4	20.5	Brown, turbid, suspended sediment, organic odour
09:02	1.0	2.490		0.33	28727	7.33	-119.2	20.5	
09:04	1.5	-		0.18	28693	7.35	-138.1	20.7	
09:06	2.0	2.899		0.14	28657	7.37	-147.5	20.7	
09:08	2.5	2.3190		0.11	28653	7.38	-155.0	20.8	
09:10	3.0	-		0.06	28553	7.39	-153.5	20.7	
				← STABILISED →					
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered: <u>/</u>	Unfiltered: <u>All</u>	x 40 mL Vial (HCl) x 60 mL Ferrous x 40 mL Vial (H ₂ SO ₄) x 100 mL Amber 1 x 60 mL purple 1 x 250 mL Plastic 1 x 125 mL yellow						Bore volume calculation, bore condition, fate of tubing, redox correction etc. Collected samples first as well does not recharge	
Approval and Distribution									
Fieldwork Staff Signature: <u>1b. Rg</u>		Date: <u>13/05/26</u>		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

BORR

Project Name:	Ampel Camarvon Eco GME	Project Number:	00788024 60644 386	PM Name:	FK GB	Bore ID:	MW 31
Client:	Ampel MRNA	Project Location:	595 Robinson St, Camarvon WA	Fieldwork Staff:	HRG / TM	Sample Date:	12/05/26

General Bore Information		Parameter Info.		Decontamination		Sampling Method		Hydrasleeve Info.	
Date of GW Level:	12/05/26	Bore Radius (mm):	150	Chem Kit Serial No.:	23F102872	☒ Decontaminated	☒ Low Flow Pump rate: 30%	Hydrasleeve Size:	Monitoring sequence followed (number in order):
Depth to GW (m-pvc):	3.500	Screen Interval (m):		Chem Kit Model:	YSI Pro	☒ Dedicated	Intake depth: -	Hydrasleeve Type:	
Bore Depth (m-pvc):		Casing Radius (mm):	50	Corrected Redox:	Y / (N)	☒ Disposable	☐ Bailor ☐ Hydrasleeve	Sampling Depth (m-pvc):	1 Gauging
Depth to Product (m-pvc):	-	Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)	☒ Peristaltic Pump ☐ Waterra	Hydrasleeve Install time:	Hydrasleeve in
Product Thickness (m):	-	Bore Locked (YES/NO):		Parameter method:	☐ Downhole ☒ Retrieved	☐ Other (specify)		Sampling Start Time:	Hydrasleeve out
		Key Type (if applicable):	Allen						2 Parameters

Calculated bore volume (L):	Includes/ excludes bore annulus (circle)	# purge volumes removed:	Total purged volume (L):
-----------------------------	--	--------------------------	--------------------------

Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
10:52	0.5	3.516	30%	13.1	498	5.40	-94.5	19.6	
10:54	1.0	3.517		0.38	575	5.30	-109.6	20.2	
10:56	1.5	3.517		0.32	733	5.24	-113.7	20.3	
10:58	2.0			0.24	887	5.16	-119.9	20.3	
11:00	2.5			0.16	978	5.13	-125.2	20.4	
11:02	3.0			0.12	1005	5.13	-129.3	20.5	
11:04	3.5	↓	↓	0.09	1011	5.12	-133.7	20.5	Clear, light brown, organic odour
← STABILISED →									
Acceptable Parameter Range: $\pm 10\%$ $\pm 3\%$ ± 0.05 ± 10 mV ± 0.2 °C $\pm 10\%$ turbidity (if using a turbidity meter)									

Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)				Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		2 x 40 mL Vial (H ₂ SO ₄)	1 x 100 mL Amber	1 x 500 mL Plastic					
		1 x 125 mL Yellow	1 x 60 mL Purple						

Approval and Distribution			
Fieldwork Staff Signature	Date	Checker Name and Signature	Date
Project Manager Signature	Date	Distribution: Project Central File	

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

86RR

Project Name:	Ampel Camarvon EoS CME	Project Number:	60788024 60644386	PM Name:	PR 93	Bore ID:	MW 25		
Client:	Ampel MRW13	Project Location:	595 Robinson St, Camarvon WA	Fieldwork Staff:	HRG 17m	Sample Date:	12/05/26		
General Bore Information		Parameter Info.		Decontamination		Sampling Method			
Date of GW Level:	12/05/26	Bore Radius (mm):	150	Chem Kit Serial No.:	23F102872	☒ Decontaminated	☒ Low Flow Pump rate: 30%		
Depth to GW (m-pvc):	8.485	Screen Interval (m):		Chem Kit Model:	X1 Pro	☒ Dedicated	Intake depth: -		
Bore Depth (m-pvc):	9.024	Casing Radius (mm):	50	Corrected Redox:	Y / ()	☒ Disposable	☐ Baller ☐ Hydrasleeve		
Depth to Product (m-pvc):	-	Cover Type (gate/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)	☒ Peristaltic Pump ☐ Waterra		
Product Thickness (m):	-	Bore Locked (YES/NO):		Parameter method:	☐ Downhole	☐ Other (specify)	☐ Other (specify)		
		Key Type (if applicable):	Allen		☒ Retrieved				
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
11:42	0.5	8.721	30%	0.55	4126	5.49	-108.8	19.9	
11:44	1.0	8.754		0.33	3320	5.52	-128.6	20.0	
11:46	1.5	8.768		0.24	3957	5.52	-135.4	20.3	
11:48	2.0	8.775		0.22	4077	5.49	-142.1	20.3	
11:50	2.5	8.794		0.20	526	5.46	-146.3	20.4	EC issue (possibly something blocking sensor)
11:52	3.0	8.814		0.12	4260	5.43	-144.4	20.2	
11:54	3.5	8.823		0.14	4183	5.44	-141.7	20.2	
11:56	4.0	-		0.18	4195	5.40	-138.2	20.3	Clear, colourless, no odour
				STABILISED					
Acceptable Parameter Range:				±10%	±3%	±0.05	±10 mV	±0.2 °C	±10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)		x 60 mL Ferrous	1 x 60 mL metals (HNO ₃)	WQA01		Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
	All	2 x 40 mL Vial (H ₂ SO ₄)	1 x 100 mL Amber	1 x 250 mL Plastic	1 x 125 mL Yellow			MW25b dry @ 2.60m	
		1 x 60 mL Purple							
Approval and Distribution									
Fieldwork Staff Signature		12/05/26		Date		Checker Name and Signature		Date	
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name:		Ampol Camarvon EoS GME	Project Number:		60798024 60644386	PM Name:		FRAB	Bore ID:		NCH
Client:		Ampol MRWA	Project Location:		595 Robinson St. Camarvon WA	Fieldwork Staff:		HRG / TM	Sample Date:		12/05/26
General Bore Information			Parameter Info.			Decontamination		Sampling Method		Hydrasleeve Info.	
Date of GW Level:	Bore Radius (mm):	Chem Kit Serial No.: 23F102672	☒ Decontaminated		☒ Low Flow Pump rate:		Intake depth:		Hydrasleeve Size:	Monitoring sequence followed (number in order):	
Depth to GW (m-pvc):	Screen Interval (m):	Chem Kit Model: YSI Pro	☒ Dedicated		☐ Bailer		☐ Hydrasleeve		Hydrasleeve Type:	1 Gauging	
Bore Depth (m-pvc):	Casing Radius (mm):	Corrected Redox: Y / N	☒ Disposable		☐ Peristaltic Pump		☒ Waterra		Sampling Depth (m-pvc):	Hydrasleeve Install time:	
Depth to Product (m-pvc):	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)		☒ Other (specify) Grab				Hydrasleeve Start Time:	Hydrasleeve out	
Product Thickness (m):	Bore Locked (YES/NO):	Parameter method: ☐ Downhole								2 Parameters	
	Key Type (if applicable):	☒ Retrieved									
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):					
Water Quality Parameters											
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity		
12:44	-	-	-	5.57	2952	7.10	44.9	18.1	Colourless, slightly turbid, no odour		
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)											
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments			
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	2 x 60 mL metals (UNO)			Bore volume calculation, bore condition, fate of tubing, redox correction etc.				
	All	2 x 40 mL Vial (H ₂ SO ₄)	1 x 100 mL Amber	1 x 250 mL Plastic							
		2 x 45 mL Yellow	1 x 60 mL Purple								
		1 x 100 mL Green Amber									
Approval and Distribution											
Fieldwork Staff Signature		Date		Checker Name and Signature		Date					
Project Manager Signature		Date		Distribution: Project Central File							

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

BORR

Project Name: Ampol Camarvon EoS GME		Project Number: 60788024 60644286		PM Name: EK GB		Bore ID: MW 46	
Client: Ampol MKWA		Project Location: 585 Robinson St, Camarvon WA		Fieldwork Staff: HRG ITM		Sample Date: 13/05/26	
Well Development or Well Sampling Event? (circle)							

General Bore Information		Parameter Info.		Decontamination		Sampling Method		Hydrasleeve Info.	
Date of GW Level: 13/05/26	Bore Radius (mm): 150	Chem Kit Serial No.: 23F102872	☒ Decontaminated	☒ Low Flow Pump rate: 30%	Intake depth: -		Hydrasleeve Size: -	Monitoring sequence followed (number in order):	
Depth to GW (m-pvc): 4.730	Screen Interval (m): -	Chem Kit Model: YSI Pro	☒ Dedicated				Hydrasleeve Type: -		
Bore Depth (m-pvc): -	Casing Radius (mm): 50	Corrected Redox: Y / 10	☒ Disposable	☐ Baller	☐ Hydrasleeve	Sampling Depth (m-pvc): i		Gauging	
Depth to Product (m-pvc): -	Cover Type (gate/stick up): -	(The correction to apply is probe dependent)	☐ Other (specify)	☒ Peristaltic Pump	☐ Waterra	Hydrasleeve Install time: -		Hydrasleeve in	
Product Thickness (m): -	Bore Locked (YES/NO): -	Parameter method: ☐ Downhole		☐ Other (specify)		Sampling Start Time: -		Hydrasleeve out	
	Key Type (if applicable): Allen	☒ Retrieved						2 Parameters	
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			

Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or $\mu\text{g/L}$)	E.C. (mS/cm or $\mu\text{S/cm}$)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
08:10	0.5	4.738	30%	1.10	935	6.23	-54.5	19.6	
08:12	1.0			0.50	912	6.19	-83.1	19.8	
08:14	1.5			0.36	887	6.16	-90.9	20.2	
08:16	2.0			0.19	872	6.14	-93.7	20.3	
08:18	2.5			0.08	867	6.12	-98.6	20.3	
08:20	3.0			0.08	865	6.12	-100.2	20.4	
08:22	3.5			0.03	864	6.11	-102.5	20.4	Brown, slightly turbid, suspended organic matter organic odour
← STABILISED →									
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)									

Analytes Sampled for:		Bottles Collected		QA/QC Information		Field Comments	
Field Filtered: /	Unfiltered: All	x 40 mL Vial (HCl)	x 60 mL Ferrous	1 x 60 mL metals (HNO₃)	Bore volume calculation, bore condition, fate of tubing, redox correction etc.		
		2 x 40 mL Vial (H ₂ SO ₄)	1 x 100 mL Amber	1 x 250 mL Plastic			
		1 x 60 mL purple		1 x yellow 125 mL			
Approval and Distribution							
Fieldwork Staff Signature: 16. Rg		Date: 13/05/26		Checker Name and Signature		Date	
Project Manager Signature		Date		Distribution: Project Central File			

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

BORR

Project Name: Ampel Gamayon EoG GME		Project Number: 60788024 60644386		PM Name: FKGP		Bore ID: MW04			
Client: Ampel MRWA		Project Location: 596 Robinson St, Carnarvon WA		Fieldwork Staff: HRG / TM		Sample Date: 12/05/26			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 12/05/26		Bore Radius (mm):		Chem Kit Serial No.: 23F102872		☒ Decontaminated			
Depth to GW (m-pvc): 4.415		Screen Interval (m):		Chem Kit Model: 461 Pro		☒ Dedicated			
Bore Depth (m-pvc): -		Casing Radius (mm):		Corrected Redox: Y / (N)		☒ Disposable			
Depth to Product (m-pvc): -		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m): -		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☒ Other (specify)			
		Key Type (if applicable):		☒ Retrieved					
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Sampling Method									
☒ Low Flow Pump rate:				Intake depth:					
☐ Bailer				☐ Hydrasleeve					
☒ Peristaltic Pump				☐ Waterra					
☐ Other (specify)									
Hydrasleeve Info.				Monitoring sequence followed (number in order):					
Hydrasleeve Size:				1 Gauging					
Hydrasleeve Type:				2 Hydrasleeve in					
Sampling Depth (m-pvc):				Hydrasleeve Install time:					
Hydrasleeve Start Time:				Hydrasleeve out					
				2-Parameters					
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or μ S/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
14:50		4.46		0.45	5108	6.32	17.6	19.2	Clear, colourless no odour ✓
14:53		4.47		0.29	5097	6.39	3.5	15.1	
14:56		4.47		0.13	5093	6.48	-21.3	19.1	
14:59		4.47		0.06	5092	6.50	-32.5	19.1	
15:02		4.47		0.06	5090	6.52	-39.5	19.2	
15:05									
15:08									
Acceptable Parameter Range: $\pm 10\%$ $\pm 3\%$ ± 0.05 ± 10 mV ± 0.2 °C $\pm 10\%$ turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO ₃)		Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		x 40 mL Vial (H ₂ SO ₄)		x 100 mL Amber		x 250 mL Plastic			
		x 60 mL Purple				x 125 mL yellow			
Approval and Distribution									
Fieldwork Staff Signature: TM		Date: 12/05/26		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: <u>BORR</u>		Project Number: <u>60788024 60644386</u>		PM Name: <u>EK CB</u>		Bore ID: <u>mw06</u>			
Client: <u>Ampol - MRWA</u>		Project Location: <u>595 Robinson St, Camarvon WA</u>		Fieldwork Staff: <u>HRG / TM</u>		Sample Date: <u>12/05/26</u>			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: <u>14/05/26</u>	Bore Radius (mm): <u>150</u>	Chem Kit Serial No.: <u>27 F10287</u>	☒ Decontaminated		☒ Low Flow Pump rate: <u>25%</u>		Hydrasleeve Info. Hydrasleeve Size: _____ Hydrasleeve Type: _____ Sampling Depth (m-pvc): _____ Hydrasleeve Install time: _____ Sampling Start Time: _____ Monitoring sequence followed (number in order): ☒ Gauging Hydrasleeve in Hydrasleeve out ☒ Parameters		
Depth to GW (m-pvc): <u>5.365</u>	Screen Interval (m): <u>-</u>	Chem Kit Model: <u>YSI Pro</u>	☒ Dedicated		Intake depth: <u>-</u>				
Bore Depth (m-pvc): <u>-</u>	Casing Radius (mm): <u>50</u>	Corrected Redox: <u>Y / (N)</u>	☒ Disposable		☐ Baller ☐ Hydrasleeve				
Depth to Product (m-pvc): <u>-</u>	Cover Type (gatic/stick up): <u>-</u>	(The correction to apply is probe dependent)	☐ Other (specify) _____		☒ Peristaltic Pump ☐ Waterra				
Product Thickness (m): <u>-</u>	Bore Locked <u>(YES/NO)</u>	Parameter method: ☐ Downhole ☒ Retrieved	☐ Other (specify) _____		☐ Other (specify) _____				
Calculated bore volume (L): _____				Includes/ excludes bore annulus (circle) _____		# purge volumes removed: _____			
Total purged volume (L): _____									
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
16:00	0.5	5.36	25	0.26	1649	6.80	-49.3	21.3	
16:04	1.0	5.36		0.10	1674	7.06	-123.6	21.4	
16:08	1.5			0.03	1678	7.15	-164.1	21.4	
16:12	2.0			0.02	1677	7.15	-165.4	21.5	
16:16	3.0			0.01	1676	7.13	-161.4	21.5	Light brown, clear, no odour
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered: <u>/</u>	Unfiltered: <u>A4</u>	x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO ₃)		Bore volume calculation, bore condition, fate of tubing, redox correction etc. 	
		x 40 mL Vial (H ₂ SO ₄)		x 100 mL Amber		x 250 mL Plastic			
Approval and Distribution									
<u>T. Marshall</u> Fieldwork Staff Signature		<u>12/05/26</u> Date		<u>TM</u> Checker Name and Signature		<u>12/05/26</u> Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

BORR

Project Name: <u>Ampel Camarvon EOS GME</u>		Project Number: <u>60788024 60644386</u>		PM Name: <u>FK GB</u>		Bore ID: <u>MW05</u>			
Client: <u>AMPTEL MRWA</u>		Project Location: <u>595 Robinson St, Camarvon WA</u>		Fieldwork Staff: <u>HRG / TM</u>		Sample Date: <u>12/05/26</u>			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: <u>12/05/26</u>		Bore Radius (mm): <u>50</u>		Chem Kit Serial No.: <u>23F10292</u>		☒ Decontaminated			
Depth to GW (m-pvc): <u>5.459</u>		Screen Interval (m): <u>-</u>		Chem Kit Model: <u>YSI Pro</u>		☒ Dedicated			
Bore Depth (m-pvc): <u>-</u>		Casing Radius (mm): <u>50</u>		Corrected Redox: <u>Y / N</u>		☒ Disposable			
Depth to Product (m-pvc): <u>-</u>		Cover Type (gatic/stick up): <u>-</u>		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m): <u>-</u>		Bore Locked (YES/NO): <u>-</u>		Parameter method: ☐ Downhole		☒ Peristaltic Pump			
		Key Type (if applicable): <u>Allen</u>		☒ Retrieved		☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
15:30	0.5	-	30%	0.42	1002	6.19	-27.7	22.2	
15:32	1.0	-		0.18	927	5.99	-45.1	22.1	
15:34	1.5	5.469		0.17	923	5.98	-45.9	22.1	
15:36	2.0	-		0.18	914	5.96	-52.0	22.0	
15:38	2.5	-		0.19	903	5.94	-57.6	22.0	
15:40	3.0	5.470		0.20	897	5.93	-62.0	22.1	Light brown, slightly turbid, suspended roots, no odour
← STABILISED →									
Acceptable Parameter Range:				± 10%	± 3%	± 0.05	± 10 mV	± 0.2 °C	± 10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)		x 60 mL Ferrous		x 60 mL metals (HNO ₃)		Bore volume calculation, bore condition, fate of tubing, redox correction etc. Unblocked roots @ 5.41m	
		2 x 40 mL Vial (H ₂ SO ₄)		1 x 100 mL Amber		1 x 200 mL Plastic			
		1 x 60 mL purple				1 x 125 mL yellow			
Approval and Distribution									
Fieldwork Staff Signature: <u>16.8</u>		Date: <u>12/05/26</u>		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: Ampel Camarvon Eos CME		Project Number: 60788024 60644386		PM Name: KCB		Bore ID: MB145			
Client: Ampel MRWA		Project Location: 595 Robinson St, Camarvon WA		Fieldwork Staff: HRG TM		Sample Date: 12/05/26			
General Bore Information				Parameter Info.		Decontamination			
Date of GW Level: 12/05/26		Bore Radius (mm): ~		Chem Kit Serial No.:		☒ Decontaminated			
Depth to GW (m-pvc): 9.245		Screen Interval (m): ~		Chem Kit Model: Y61 Pro		☒ Dedicated			
Bore Depth (m-pvc): -		Casing Radius (mm): 50		Corrected Redox: Y / N		☒ Disposable			
Depth to Product (m-pvc): ~		Cover Type (gatic/stick up):		(The correction to apply is probe dependent)		☐ Other (specify)			
Product Thickness (m): -		Bore Locked (YES/NO):		Parameter method: ☐ Downhole		☐ Bailer ☐ Hydrasleeve			
		Key Type (if applicable):		☒ Retrieved		☐ Peristaltic Pump ☐ Waterra			
						☐ Other (specify)			
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or uS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
14:00	-	-	-	2.30	1129	4.24	-20.1	20.5	Clear, colourless, no odour
Acceptable Parameter Range: ± 10% ± 3% ± 0.05 ± 10 mV ± 0.2 °C ± 10% turbidity (if using a turbidity meter)									
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:							Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
	All	x 40 mL Vial (HCl) x 60 mL Ferrous x 60 mL metals (HNO3)						MB14d - DTW = 11.989	
		x 40 mL Vial (H2SO4) x 100 mL Amber x 250 mL Plastic							
		x 125mL Yellow x 60mL purple							
Approval and Distribution									
Fieldwork Staff Signature		Date		Checker Name and Signature		Date			
Project Manager Signature		Date		Distribution: Project Central File					

ANZ

FQM - Groundwater Sampling and Purging Record

Q4AN(EV)-405-FM1

Project Name: <u>BORR</u> <u>Ampol Gernarven EoS GME</u>		Project Number: <u>60788024 60644386</u>		PM Name: <u>FK GB</u>		Bore ID: <u>MWIS</u>			
Client: <u>Ampol MRNA</u>		Project Location: <u>595 Robinson St, Gernarven WA</u>		Fieldwork Staff: <u>HRG / TM</u>		Sample Date: <u>12/05/26</u>			
Well Development or Well Sampling Event? (circle)									
General Bore Information		Parameter Info.		Decontamination		Sampling Method			
Date of GW Level: <u>12/05/26</u>	Bore Radius (mm): <u>150</u>	Chem Kit Serial No.: <u>23F02872</u>	☒ Decontaminated	☒ Low Flow Pump rate: <u>25 l</u>		Hydrasleeve Size: <u>Monitoring sequence followed (number in order):</u>			
Depth to GW (m-pvc): <u>2.055</u>	Screen Interval (m):	Chem Kit Model: <u>YSI Pro</u>	☒ Dedicated	Intake depth: <u>—</u>		Hydrasleeve Type: <u>✓ Gauging</u>			
Bore Depth (m-pvc):	Casing Radius (mm): <u>50</u>	Corrected Redox: <u>Y / (N)</u>	☒ Disposable	☐ Bailer ☐ Hydrasleeve		Sampling Depth (m-pvc): <u>✓ Gauging</u>			
Depth to Product (m-pvc): <u>—</u>	Cover Type (gatic/stick up):	(The correction to apply is probe dependent)	☐ Other (specify)	☒ Peristaltic Pump ☐ Waterra		Hydrasleeve Install time:			
Product Thickness (m): <u>—</u>	Bore Locked (YES/NO): <u>(NO)</u>	Parameter method: ☐ Downhole ☒ Retrieved	☐ Other (specify)		Sampling Start Time:		Hydrasleeve out <u>Parameters</u>		
Key Type (if applicable): <u>Allen</u>									
Calculated bore volume (L):		Includes/ excludes bore annulus (circle)		# purge volumes removed:		Total purged volume (L):			
Water Quality Parameters									
Time	Cumulative Vol. Removed (L)	SWL (m-pvc)	Pump Rate	DO (ppm or mg/L)	E.C. (mS/cm or µS/cm)	pH	Redox (mV)	Temp °C	Odour, Colour, Turbidity
13:13		2.06	25	2.13	2069	6.20	-29.3	22.0	Blackish, no odour,
13:16		2.06		0.05	2075	6.04	-85.5	21.9	
13:19		2.06		0.12	2068	6.03	-108.6	22.0	
13:21		2.06		0.06	2055	6.03	-122.2	22.0	
13:24		2.06		-0.05	2018	6.02	-132.0	21.9	
13:27		2.06		-0.03	1907	6.01	-138.0	21.8	Brown, slightly turbid, no odour
13:30			YSI Stopped with error						
13:33									
Acceptable Parameter Range:				±10%	±3%	±0.05	±10 mV	±0.2 °C	±10% turbidity (if using a turbidity meter)
Analytes Sampled for:		Bottles Collected				QA/QC Information		Field Comments	
Field Filtered:	Unfiltered:	x 40 mL Vial (HCl)	x 60 mL Ferrous	x 60 mL metals (HNO ₃)				Bore volume calculation, bore condition, fate of tubing, redox correction etc.	
		2 x 40 mL Vial (H ₂ SO ₄)	1 x 100 mL Amber	1 x 250 mL Plastic					
		1 x 60 mL purge		1 x 125 mL Yellow					
Approval and Distribution									
Fieldwork Staff Signature: <u>[Signature]</u>		Date: <u>12/05/26</u>		Checker Name and Signature: <u>[Signature]</u>		Date: <u>12/05/26</u>			
Project Manager Signature: _____		Date: _____		Distribution: Project Central File					

Q4AN(EV)-011-FM1

QAQC Information	
------------------	--

QA/QC Project Requirements	
----------------------------	--

Approval and Distribution	
----------------------------------	--

Date _____

Date _____

Q4AN(EV)-011-FM1
FQM - Sample QAQC Tracking Sheet (Q4AN(EV)-011-FM1)
Revision 1 May 2, 2016

Appendix F

Calibration records



Equipment Check Report

Water Level/Drawdown Meter

Customer: Aecom

Contact: Teboho

Manufacturer: Heron

Instrument: Dipper T

Serial #: 11DM2305036FR

Cable length: 30m

Item	Test	Pass	Comments
Battery	Voltage (9v battery)	✓	Voltage above 7.9 V
	Capacity	✓	
Probe	Decontaminated	✓	
	Condition	✓	
	Operation	✓	
Connectors	Condition	✓	
Tape Check	Condition	✓	Good, no tears
	Decontaminated	✓	
Instrument Test	Water level mode	✓	
	Drawdown mode	✓	
Speaker	Operation	✓	

Comments

NA

This is to certify that the above instrument has been checked and is in good working order.

Checked by: Gaurav Kanwar

Check Date 11-Mar-26

Next Due: 07-Sep-26



Equipment Check Report

Water Level/Drawdown Meter

Customer: Aecom

Contact: Teboho

Manufacturer: Heron

Instrument: Dipper T

Serial #: 11DM211148HB

Cable length: 30m

Item	Test	Pass	Comments
Battery	Voltage (9v battery)	✓	Voltage above 7.9 V
	Capacity	✓	
Probe	Decontaminated	✓	
	Condition	✓	
	Operation	✓	
Connectors	Condition	✓	
Tape Check	Condition	✓	Good, no tears
	Decontaminated	✓	
Instrument Test	Water level mode	✓	
	Drawdown mode	✓	
Speaker	Operation	✓	

Comments

NA

This is to certify that the above instrument has been checked and is in good working order.

Checked by: Gaurav Kanwar

Check Date 07-Apr-26

Next Due: 04-Oct-26



Equipment Check Report

Oil/Water Interface Meter

Customer: Aecom

Contact: Shimona

Manufacturer: Heron

Instrument: H.OIL

Serial #: 162006052EC

Cable length: 60m

Item	Test	Pass	Comments
Battery	Voltage (9v battery)	✓	Voltage above 7.9 V
	Capacity	✓	
Probe	Decontaminated	✓	
	Condition	✓	
	Operation	✓	
Connectors	Condition	✓	
Tape Check	Condition	✓	Good, no tears
	Decontaminated	✓	
Instrument Test	Water level mode	✓	
	Interface mode	✓	
Speaker	Operation	✓	

Comments

NA

This is to certify that the above instrument has been checked and is in good working order.

Checked by: Gaurav Kanwar

Check Date 01-May-26

Next Due: 31-May-26

Calibration Report

Multi-Parameter Water Quality Instrument

Customer: Aecom

Contact: Teboho

Manufacturer: YSI

Instrument: Professional Plus with Quatro cable

Serial #: 23F102872

Cable length: 1m 19H100045

Item	Test	Pass	Comments
Battery	2 x Alkaline C-cells	✓	Voltage reading above 2.9V
	Battery Saver	✓	Automatically turns off after 30 minutes if not used
Connections	Condition	✓	Good, clean
Cable	Condition	✓	Clean, no tears
Display	Operation	✓	
Firmware	Version	✓	4.0.0
Keypad	Operational	✓	
Display	Screen	✓	
Unit	Condition, seals and O-rings	✓	
Monitor housing	Condition	✓	
pH			
Condition		✓	Good, clean
pH millivolts for pH7 calibration range	0 mV ± 50 mV	✓	
pH 4 mV range + 165 to + 180 from 7 buffer mV value		✓	174.10 mV
pH slope		✓	55 to 60 mV/pH, ideal 59mV 58.49
Response time < 90 seconds		✓	
Calibrated and conforms to manufacturer's specifications		✓	
ORP			
Condition		✓	Good, clean
Response time < 90 seconds		✓	
within ± 80mv of reference Zobell Reading		✓	
Calibrated and conforms to manufacturer's specifications		✓	variance range ± 20mV 9 mV
Conductivity			
Condition		✓	Good, clean
Temperature		✓	°C
Conductivity cell constant	5.0 ± 1.0 in GLP file	✓	
Clean sensor reads less than 3 uS/cm in dry air		✓	
Calibrated and conforms to manufacturer's specifications		✓	µs/cm
Dissolved Oxygen			
Condition		✓	Good, clean
DO sensor in use		✓	polarographic
1.25 mil PE membrane (yellow membrane):		✓	
DO Sensor Value		✓	(min 4.31 uA - max 8.00 uA) Avg 6.15 uA
Calibrated and conforms to manufacturer's specifications		✓	ppm

This is to certify that the above instrument has been calibrated to the following specifications:

Instrument Readings

Parameter	Standards	Reference	Calibration Point	Span	Units	Before	After	Units
Temperature (24J100306)	Check Temp NATA	Room Temp	21.2	-0.2	°C	NA	21	°C
pH (25D)	pH 7.00	365751	7.01	-21.50	mV	7.37	7.01	pH
pH (25D)	pH 4.00	449249	4.00	152.60	mV	4.39	4.00	pH
Conductivity (24J100306)	2764 µs/cm at 25°C	25/2407	2764	GLP	4.83	2857	2764	µs/cm
ORP (200124SEN605102)	Zobell A & B	24/0110	238	238	mV	214	228.9	mV
Zero DO (25K100436)	NaSO3 in distilled water	432419	0.0	NA	NA	2.7	0.0	%
100% DO (25K100436)	100% Air Saturation	Air	100.0	4.8		90.1	100.0	%

Calibrated by: Gaurav Kanwar

Calibration Date: 07-May-26

Next Due: 03-Nov-26

Test Certificate

Geotech Peristaltic Pump

Customer: Aecom

Contact: Teboho

Manufacturer: Proactive Environmental

Instrument: 12 Volt Peristaltic Pump

Model: EP PP

Serial #: GK2007-21

Item	Test	Pass	Comments
Inspection	MasterFlex head	✓	Decontaminated and Clean
	Controller body	✓	Decontaminated and Clean
	Case	✓	Decontaminated and Clean
	Cigarette Plug light	✓	Working
Switches	Operation	✓	On/Off
	Operation	✓	Forward/Reverse
	Operation	✓	Speed Dial 60-350rpm
	Operation	✓	MasterFlex head Suction test Forward/Reverse with 1/4 silicone tubing
Connectors	Operation	✓	Cigarette Female Plug to Alligator Clip
	Operation	✓	Power lead
	Operation	✓	Cigarette Fuse 10A Tested continuity with multimeter
Charger	Operation	✓	Charger, Power supply
	Tested and Tagged	✓	
Flow Rate	Approx 500ml/min	✓	675 ml/min
Battery	Voltage >12.6	✓	13.00 V
	5 min Run and Re-test Voltage	✓	12.90 V

Tested by: Gaurav Kanwar

Test Date: 11-May-26

Next Due: 07-Nov-26



Equipment Check Report

Water Level/Drawdown Meter

Customer: Aecom

Contact: Tebobo

Manufacturer: Heron

Instrument: Dipper T

Serial #: 11DM211148HB

Cable length: 30m

Item	Test	Pass	Comments
Battery	Voltage (9v battery)	✓	Voltage above 7.9 V
	Capacity	✓	
Probe	Decontaminated	✓	
	Condition	✓	
	Operation	✓	
Connectors	Condition	✓	
Tape Check	Condition	✓	Good, no tears
	Decontaminated	✓	
Instrument Test	Water level mode	✓	
	Drawdown mode	✓	
Speaker	Operation	✓	

Comments

NA

This is to certify that the above instrument has been checked and is in good working order.

Checked by: Gaurav Kanwar

Check Date 11-May-26

Next Due: 07-Nov-26



Equipment Check Report

Water Level/Drawdown Meter

Customer: Aecom

Contact: Hannah

Manufacturer: Heron

Instrument: Dipper T

Serial #: 11DM211148HB

Cable length: 30m

Item	Test	Pass	Comments
Battery	Voltage (9v battery)	✓	Voltage above 7.9 V
	Capacity	✓	
Probe	Decontaminated	✓	
	Condition	✓	
	Operation	✓	
Connectors	Condition	✓	
Tape Check	Condition	✓	Good, no tears
	Decontaminated	✓	
Instrument Test	Water level mode	✓	
	Drawdown mode	✓	
Speaker	Operation	✓	

Comments

NA

This is to certify that the above instrument has been checked and is in good working order.

Checked by: Gaurav Kanwar

Check Date 16-Jun-26

Next Due: 13-Dec-26

Attachment 2: Annual Aquatic Fauna and Surface Water Report (SLR Consulting, 2026)



BORR (Southern Alignment) MS1191

Annual Aquatic Fauna Report

Main Roads WA

Prepared by:

SLR Consulting Australia Pty Ltd

SLR Project No.: 675.073364.00002

27 July 2026

Revision: 03

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
01	12 June 2026	A.H.	M.T.	M.T.
02	18 June 2026	A.H.	A.P., P.W.	A.P., P.W.
03	27 July 2026	A.H.	A.P.	A.P.
	Click to enter a date.			
	Click to enter a date.			

Basis of Report

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Main Roads WA (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.



Executive Summary

The Bunbury Outer Ring Road (BORR) is a planned Controlled Access Highway linking the Forrest Highway and Bussell Highway. The Project area is located approximately 200 km south of Perth and occurs within the City of Bunbury and Shires of Capel, Dardanup and Harvey. The BORR is separated into the BORR (Northern and Central) and BORR (Southern) Sections. The BORR (Southern Section) includes 11 kilometres (km) of dual carriageway connecting the South-Western Highway to Bussell Highway.

Stage 1 of construction of the BORR (Southern Section) was completed July 1st 2025 and consists of a high standard route to access to the Bunbury Port, and to facilitate proposed development to the east of the City of Bunbury and provide an effective bypass of Bunbury for inter-regional traffic.

To determine if the proposal was having a potential impact on BSM habitat within or adjoining the development envelope, pre-disturbance monitoring of hydrological regimes and baseline conditions was undertaken. Monitoring was also undertaken during construction to assess if the project was having attributable impacts on the hydrological regime and the water quality of potential BSM habitat.

This report outlines the results from the 2025-26 monitoring period for the southern alignment (reporting period June 2025 – May 2026), which included two water quality monitoring events (September and December 2025), and an annual BSM population survey in September 2025.

BSM catch numbers were low throughout the southern alignment, including reference sites external to the Project area, during the reporting period. Single specimens of BSM were observed at impact sites BSM-S-PI-1 and BSM-S-PI-3, both located in 5 Mile Brook.

BSM was not recorded at reference site BSM-S-R-1, representing the first absence of BSM at this site at part of these surveys (2020 – present). Absences may be attributed to low DO% recorded at the time of BSM surveys, leading to a reduction in breeding and movement.

There was no observable changes to water chemistry at any sites between pre and post disturbance up to the current reporting period, in either univariate or multivariate analysis. UFI-wetlands have stayed consistent with pre disturbance conditions (water quality and habitat), with the exception of UFI-1117, which showed a change between pre and post disturbance. This change however is deemed minor, given the absence of BSM during all previous surveys, and the condition of the wetland prior to construction.

To date, there have been no Project attributable impacts to the hydrological regime and water quality of any BSM habitat nor UFI wetland sites. Data collection at monitoring sites will continue to monitor for construction related impacts that could influence water quality, habitat and BSM populations.



Table of Contents

Basis of Report	i
Executive Summary	ii
Acronyms and Abbreviations	vi
1.0 Introduction	1
1.1 Overview and Scope	1
1.1.1 State Approval – Ministerial Statement 1191	1
1.2 Background	2
1.3 Objectives	2
2.0 Species of Conservation Significance	3
2.1 Black-stripe Minnow	3
3.0 Methodology	5
3.1 Licenses, Standards, Guidelines	5
3.2 Sites and Sampling Design	5
3.3 Habitat.....	8
3.4 Surface Water Sampling.....	8
3.5 Photopoints	8
3.6 Black-stripe Minnow Sampling.....	8
3.7 Statistical Analysis.....	9
4.0 Results and Discussion	10
4.1 Rainfall	10
4.2 Habitat.....	11
4.3 Surface Water	14
4.3.1 Depth	14
4.3.2 BSM Monitoring Sites.....	14
4.3.3 UFI Wetland Monitoring Sites	22
4.3.4 Photopoint Monitoring	26
4.3.5 Annual BSM Population Monitoring	29
5.0 Summary and Conclusions	30
5.1 Black-stripe Minnows	30
5.2 UFI Wetlands	33
5.3 Recommendations	34
6.0 References.....	35



Tables

Table 1. Summary of all sampling locations for BSM	6
Table 2. Summary of UFI sites in the southern alignment, and the current monitoring status, as per the ministerial reporting requirements.	6
Table 3. Annual total rainfall (mm) for Bunbury (009965).	10
Table 4. Average percentage of different habitat types of BSM sites.....	11
Table 5. Average percentage of substrate types of BSM sites sampled	11
Table 6. Maximum water depth (m) at each BSM monitoring site.....	14
Table 7. <i>In-situ</i> water quality results from BSM southern sites sampled in 2025/26.....	15
Table 8. Laboratory analysed water quality results from all black-stripe minnow sites.....	16
Table 9. Summarised two-way ANOVA results examining differences in water quality between year and site.....	17
Table 10. <i>In-situ</i> water quality results from UFI-wetlands sampled in 2025/26	22
Table 11. Laboratory analysed water quality results from all black-stripe minnow sites.....	23
Table 12. Summarised two-way ANOVA results examining differences in water quality between year and site.....	24
Table 13. Summary of observed changes in BSM monitoring sites between pre- and post-disturbance timeframes.....	32
Table 14. Summary of observed changes in UFI-wetlands between pre- and post-disturbance timeframes.....	33

Figures

Figure 1. BORR (Southern Alignment) Project Area.....	7
Figure 2. June 2025 to May 2026 monthly rainfall with mean rainfall overlayed (1995 – present).	10
Figure 3. Percentage substrate change over time in BSM sites (2019 – 2025) – Q3 only. ..	12
Figure 4. Percentage habitat change over time in BSM sites (2019 – 2025) – Q3 only	13
Figure 5. Temperature changes over time at all BSM sites	18
Figure 6. pH changes over time at all BSM sites	18
Figure 7. DO (%) changes over time at BSM sites	18
Figure 8. Colour (TCU) changes over time at BSM sites	19
Figure 9. Principal co-ordinates (PCO) of water quality analytes recorded at BSM monitoring sites during Q3 and Q4.....	20
Figure 10. Principal co-ordinates (PCO) of water quality analytes (physico-chemistry only, excl. hydrocarbons) recorded at BSM monitoring sites during Q3 and Q4	20
Figure 11. NMDS ordinations of water quality samples (physico-chemistry from Q3 and Q4) from each BSM monitoring site	21
Figure 12. DO (%) changes over time at UFI wetland sites	25



Figure 13. Turbidity (NTU) changes over time at UFI wetland sites.....	25
Figure 14. Calculated Catch Per Unit Effort (CPUE) data from 2020 – 2025 for BSM	29

Plates

Plate 1. Black-stripe Minnow (<i>G. nigrostriata</i>).....	3
Plate 2. Difference in floating vegetation (duck weed) between 2025 (top) and 2024 (bottom left & right).	13
Plate 3. Differences in sampling habitat and the development of construction at BSM-S-PI-1	26
Plate 4. Ongoing construction works at BSM-S-PI-2 from photopoint monitoring locations .	27
Plate 5. Infrastructure (culvert / run-off drain) into receiving wetland UFI-1117.....	28
Plate 6. Receded pool at site BSM-S-PI-2 during Q1 2025.	31

Appendices

Appendix A	Water Quality Monitoring
Appendix B	Photopoints



Acronyms and Abbreviations

ANZECC/ARMCANZ	Australian and New Zealand Environment and Conservation Council/Agriculture and Resource Management Council of Australia and New Zealand
ANZG	Australia and New Zealand Guidelines
BC	Biodiversity Conservation
BORR	Bunbury Outer Ring Road
BSM	Black-stripe Minnow (<i>Galaxiella nigrostriata</i>)
CFM	Carter's Freshwater Mussel (<i>Westralunio carteri</i>)
CPUE	Catch Per Unit Effort
DBCA	Department of Biodiversity, Conservation and Attractions
DGV	Default Guideline Values
DO	Dissolved Oxygen
DPIRD	Department of Primary Industries and Regional Development
EC	Electrical Conductivity
EPBC	Environmental Protection and Biodiversity Conservation
EXEM	Exemption
IPT	Integrated Project Team
IUCN	International Union for Conservation of Nature
MNES	Matters of National Environmental Significance
NATA	National Association of Testing Authorities
NOM	Natural Organic Matter
NTU	Nephelometric Turbidity Units
SCP	Swan Coastal Plain
SGC	Silica-Gel Cleanup
SL	Standard Length
SWGA	South West Gateway Alliance
UFI	Unique Feature Identifier
UWA	University of Western Australia
WRM	Wetland Research & Management



1.0 Introduction

1.1 Overview and Scope

1.1.1 State Approval – Ministerial Statement 1191

On 31 May 2022, the Commissioner of Main Roads Western Australia (Main Roads) obtained conditional approval (Ministerial Statement 1191 (MS1191)) to construct the Bunbury Outer Ring Road Southern Section (the Proposal) under Part IV Division 2 (section 45) of the WA *Environmental Protection Act 1986* by the Minister for Environment.

In its Report and Recommendations for the Proposal (EPA Report 1714, October 2021), the EPA noted in relation to Inland Waters, the potential for direct and indirect impacts to hydrological regimes and water quality in adjacent Conservation Category Wetlands (CCWs), Resource Enhancement Wetlands (REWs), the Five Mile Brook and BSM habitats.

To address these impacts, under Condition 2 of MS1191, the EPA required pre-disturbance monitoring of hydrological regimes and baseline conditions, and monitoring of these elements during and post-construction, with reporting requirements, to meet the objective that there are no project-attributable impacts to the hydrological regime and water quality of 'conservation' category and 'resource enhanced' wetlands, Five Mile Brook, or BSM habitat. MS1191 includes the following conditions in relation to Inland Waters:

Condition 2-1(2)

No project attributable impacts to the hydrological regime and water quality of the following values when compared to preconstruction baseline conditions:

- (a) Five Mile Brook (incorporating Multiple Use Wetland UFI-1163 and Conservation Category Wetland UFI-931);
- (b) Conservation Category Wetland (UFI-14478);
- (c) Resource Enhancement Wetlands (UFI-1117 and UFI-15493) and;
- (d) black-stripe minnow (*Galaxiella nigrostriata*) habitats defined and mapped in the proponent's Action Management Plan Conservation Significant Fauna (Revision 2 August 2021) that are within or adjoins the development envelope, except for the black-stripe minnow habitats permitted to be cleared in condition 4-1(1)(e).

Condition 2-3

The proponent shall continue to undertake monitoring of hydrological regime and water quality during and post-construction until the CEO is satisfied that the proponent has demonstrated the outcomes in condition 2-1(2) have been met.

Condition 2-4

The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:

- (1) *outline the monitoring that was undertaken during the implementation of the proposal;*
- (2) *outline the results of the monitoring undertaken to report whether that the environmental outcomes specified in condition 2-1(2) were achieved;*
- (3) *report whether that the outcomes in condition 2-1(2) were achieved; and*



- (4) *outline any management actions undertaken during the implementation of the proposal to meet the outcomes in condition 2-1(2).*

1.2 Background

The Proposal passes through or is adjacent to a number of waterbodies. To comply with Condition 2 of MS1192, it was necessary to document the ecological values of these ecosystems and determine if they support any aquatic fauna species of conservation significance. Based on reconnaissance field surveys undertaken by WRM in 2018 – 2020, some of these wetlands were found to support one State, Federally and internationally listed species:

- Black-stripe minnow (*Galaxiella nigrostriata*), Endangered (EPBC Act 1999), Endangered (BC Act 2016, Schedule 2 of the Wildlife Conservation Specially Protected Fauna Notice 2018), Endangered (IUCN Redlist 2022).

Construction commenced in the Project area (southern alignment) in August 2022, including works in proximity to Five Mile Brook (BSM-S-PI-1 and BSM-S-PI-2; refer to Table 1 and Figure 1). Stage 1 Construction activities finished on July 1st, 2025, with pre and post disturbance data being based on this date.

Monitoring frequency at the commencement of the current reporting period (June 2025 – May 2026) changed from quarterly water quality monitoring, at both BSM populated and UFI listed wetlands, to biannual monitoring as per post construction requirements with annual monitoring for BSM staying consistent with previous monitoring periods (see Table 5-10 of the MNES FMP).

Monitoring of BSM populated and UFI listed wetlands was undertaken during the months of September and December 2025, with annual population monitoring of BSM undertaken in September when wetlands supporting minnows were inundated.

1.3 Objectives

To ensure that wetland habitat conditions (including both BSM and UFI listed habitats) are not impacted by construction of the Proposal, measures were implemented to avoid, mitigate and manage impacts of the Proposal during clearing, construction and operation.

This report aims to review potential impacts to the hydrological regime and water quality of the values, as outlined in *Condition 2-1(2)* when compared to baseline conditions (reporting period June 2025 – May 2026). Data herein will be summarised for the current monitoring period, as well as relevant comparisons to previous data, where applicable.

As a result of confirmed occurrences of BSM within the southern investigation area, it is necessary to monitor the potential effects of the Proposal on potential populations. The monitoring for both BSM and UFI listed habitat now includes:

- water quality monitoring including *in situ* parameters (pH, oxygen-reduction potential, dissolved oxygen, electrical conductivity, turbidity and temperature) and laboratory analysis of total suspended solids, hydrocarbons, total nitrogen (TN), total phosphorus (TP) and colour,
- photopoint monitoring from a permanent stake,
- detailed habitat characteristics including mineral substrate and aquatic habitat composition,
- targeted BSM population survey (only applicable in confirmed BSM sites, see Section 3.2).



2.0 Species of Conservation Significance

Aquatic ecosystems in the south-west of the state support a diverse range of taxa with different local, regional, national, and international distributions, and therefore taxa vary in their conservation status depending upon their distribution and evolutionary origins. To assess the conservation significance of aquatic fauna recorded a range of sources were referenced, including:

- Nationally threatened Fauna listed under the EPBC Act 1999,
- Threatened and Priority Fauna in Western Australia under the BC Act 2016 (as listed on the Department of Biodiversity, Conservation and Attractions Threatened and Priority Fauna List (DBCA 2024)),
- Threatened Fauna under the IUCN Redlist of Threatened Species (IUCN 2024), and
- Conservation status of Australian Fishes List (Australian Society for Fish Biology 2016).

One species of conservation significance was specifically targeted during the sampling; the black-stripe minnow. Information on this species is outlined below.

2.1 Black-stripe Minnow

The BSM (Plate 1) is currently listed as Endangered nationally (EPBC Act 1999) and at a state level in Western Australia (Biodiversity Conservation Act 2016, April 2024 list), as well as Endangered at an international level (IUCN Red List of Threatened Species 2024). The BSM is capable of aestivating (burrowing) into benthic sediments of wetlands where they reside to survive drying habitat and therefore can inhabit wetlands that dry over summer, re-appearing in pools within hours following first rains (Morgan *et al.* 2011). Interestingly, BSM does not have any specific anatomical or physiological adaptations to facilitate true aestivation and is assumed to survive either within moist soils or within crayfish burrows that contain water through dry periods. It appears that most individuals only live for one year, dying shortly after spawning (Morgan *et al.* 2011).



Plate 1. Black-stripe Minnow (*G. nigrostriata*)



Survival of aestivating individuals in summer will likely depend upon soil moisture profiles which will be influenced by local aquifer dynamics to the extent of any groundwater drawdown. To determine threshold levels, it is necessary to know dependence of aestivating fish on soil moisture, and depth to moisture, during summer. Some aestivating species, such as frogs build a cocoon in which they aestivate and this reduces moisture loss and aids survival. As noted above, BSM do not appear to have any specific adaptations to assist aestivation and appear to survive in the wet mud within the bed of the wetland (Howard Gill (Murdoch Uni, pers. com.)). As such, the depth to moisture within wetland sediments is important to the survival of this species. Specifics relating to the depth and duration of aestivation for this species are not currently known, with further research required in general. Given their short, one-year lifecycle (Ogston *et al.* 2016), any rapid declines in groundwater levels as well as reductions in surface flows that result in failed recruitment are highly likely to adversely affect populations of this species.

BSM inhabit darkly tannin stained, vegetated, ephemeral wetlands of approximately 300 mm water depth with an observed pH range of 3 - 8 (Morgan and Gill 2000, Galeotti *et al.* 2008), with a preference for slightly acidic waters (3.0 – 6.5) and low to moderate temperatures (11 - 30°C) (Morgan *et al.* 1998). Other than these general observations, and anecdotal information, little is known about the preferred physio-chemical water properties of their habitats, with no correlations found between their occurrence and physio-chemical variables measured in wetlands across the south-west (Galeotti 2013). However, individual populations appear to be sensitive to sudden, localised changes in water quality variables (Knott *et al.* 2002). Little is known about the salinity tolerances for the BSM, although the authors have previously recorded them in wetlands with salinity levels above 3330 µS/cm.

The BSM is endemic to south-western Australia and rare throughout its distribution. Its main distribution lies within the Warren sub-region, where numerous populations are found between Albany and Augusta. However, there are isolated populations on the Swan Coastal Plain, including Lake Chandala (near Gingin), Melaleuca Park (north of Perth), and wetlands within the Kemerton Nature Reserve (north of Bunbury) (Morgan *et al.* 1998, Allen *et al.* 2002), although the status of these populations is currently unknown. A survey by WRM (now part of SLR) in October 2018 within the BORR southern alternate investigation area, recorded a population of BSM in Gelorup (WRM 2019a). It is thought that the populations on the Swan Coastal Plain are remnants of a once wider distribution (Morgan *et al.* 1998), suggesting that the loss of habitat caused by urban and rural development (i.e. land clearing and infilling of wetlands) during the previous hundred years has had a significant impact on the extent of this species. As such, their biggest threat is loss of suitable habitat through urbanisation and rural development.



3.0 Methodology

Aquatic fauna sampling by SLR is consistent with methodology used by others in similar surveys across Australia (i.e. Cheal *et al.* 1993, Storey *et al.* 1993, Edward *et al.* 1994), including the sampling of wetlands of the SCP by Murdoch University (Davis *et al.* 1993) and the National Monitoring River Health Initiative (Department of Environment Sport and Territories *et al.* 1994).

3.1 Licenses, Standards, Guidelines

This study was conducted under DPIRD Fisheries Licence EXEM 25138125 (*Instruments of Exemption to the Fish Resources Management Act 1994* for Scientific Research Purposes). As a condition of this licence, taxa lists and reports are required to be submitted to DPIRD. The study was also conducted under DBCA Fauna Taking (Biological Assessment) Licence BA27001380. As a condition of this licence, a fauna return including taxa lists and locations, is required upon project completion.

Water quality for physico-chemical parameters and nutrients were compared against ANZECC/ARMCANZ (2000) freshwater guideline values for the protection of slightly/moderately disturbed wetland ecosystems in the southwest of Western Australia as these are the most recent locally specific guidelines. It is noted that the ANZECC and ARMCANZ (2000) are now referred to as Australia and New Zealand Guidelines (ANZG) (2018) and came into effect on 4 September 2018 (ANZG 2018). Preliminary review of these guidelines has identified that new default guideline values are not yet provided for SW WA. For the purposes of this study, ANZECC and ARMCANZ (2000) criteria have been adopted until these values are updated but are referred to as ANZG (2018) from herein. Results have also been compared to historical data from the pre-development monitoring program (BORR IPT 2020, SWGA 2021).

3.2 Sites and Sampling Design

Three sites were included in initial the monitoring program for BSM, including one reference site and two potential impact sites (Table 1; Figure 1). The reference site was established for the purposes of providing comparative BSM population trend data and seasonal water quality changes, including water depth. An additional potential impact site (BSM-S-PI-3) was added after wetland studies in August-October 2022 (WRM 2022).

All UFI listed sites were monitored as per Ministerial Conditions 2-1(2) and their current status (including the current presence/absence of BSM) are outlined in Table 2.

Field surveys conducted for the Project (WRM 2020), inclusive of long-term monitoring of BSM sites have been ongoing since 2020, with the exception of the recently added potential impact site BSM-S-PI-3. Monitoring sites outlined in Table 1 include two sites within the Development Envelope (BSM-S-PI-1 and BSM-S-PI-2), one site downstream of the Development Envelope (BSM-S-PI-3), and a reference site (BSM-S-R-1) (Figure 1).



Table 1. Summary of all sampling locations for BSM (wetlands) within and adjacent to the southern investigation area. GPS points relate to photopoint locations.

Southern Investigation Area				
Black-stripe minnow sites				
Site Code	Easting	Northing	Site type	Previous name code
BSM-S-R-1	373503	6298065	Reference	WRM Site 3 (2018 – alternate alignment)
BSM-S-PI-1	373329	6300480	Potential impact	Five Mile Brook – additional sample site
BSM-S-PI-2	373608	6300320	Potential impact	WRM South 8 (2019)
BSM-S-PI-3	373836	6301723	Potential Impact	UFI-931, downstream Five Mile Brook

Table 2. Summary of UFI sites in the southern alignment, and the current monitoring status, as per the ministerial reporting requirements. CCW = Conservation Category Wetland, MUW = Multiple-Use Wetland, REW = Resource Enhancement Wetland.

UFI-listed wetlands in the Southern Investigation Area				
UFI-code	Wetland Type	Surface Water Location ID	BSM (presence/absence)	Comments
UFI-931	CCW	BSM-S-PI-1	Y	BSM found during annual monitoring in 2021. Monitoring will continue throughout the development of the project.
UFI-1163	MUW	BSM-S-PI-2	Y	BSM found during annual monitoring in 2021. Monitoring will continue throughout the development of the project.
UFI-1163	MUW	BSM-S-PI-3	Y	Downstream site of BSM-S-PI-2. BSM found during annual monitoring in 2022. Monitoring will continue throughout the development of the project.
UFI-1117	REW	UFI-1117	N	Low levels of water holding during 2022 annual surveys. Topography also unsuited for wetland. Follow up surveys observed no BSM populations. No further follow up BSM surveys required.
UFI-14478	CCW	UFI-14478	N	Initial surveys during May 2022 indicate healthy, wetland habitats that had recently dried due to seasonality. Follow up surveys observed no BSM populations. No further follow up BSM surveys required.
UFI-15493	REW	UFI-15493	N	Initial surveys during May 2022 indicate healthy, wetland habitats that had recently dried due to seasonality. Follow up surveys observed no BSM populations. No further follow up BSM surveys required.



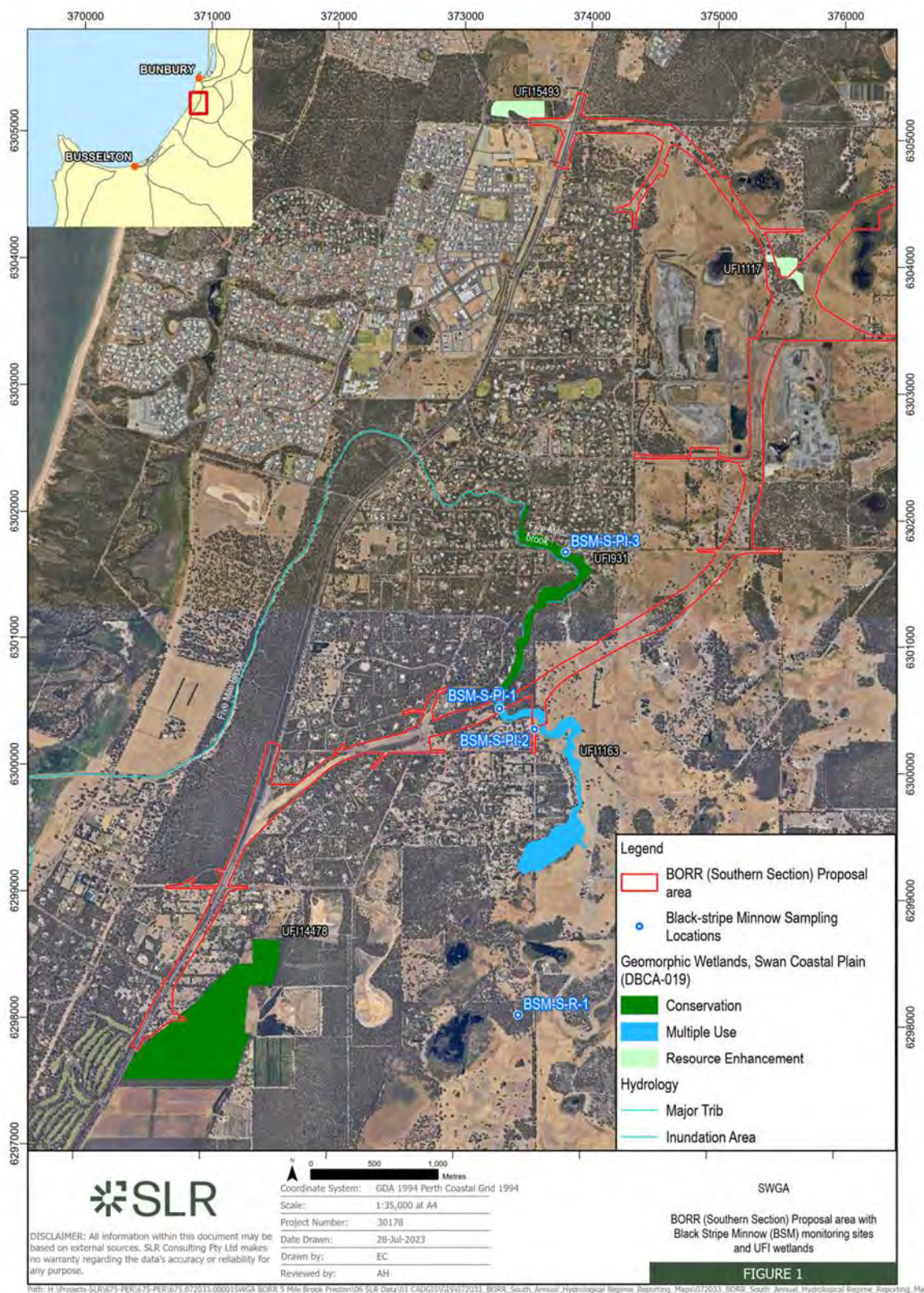


Figure 1. BORR (Southern Alignment) Project Area with Black-Stripe Minnow (BSM) and UFI wetlands (conservation, multiple use and resource enhancement) areas overlaid



3.3 Habitat

Details of aquatic mineral substrate and in-stream habitat characteristics were made at each site during each sampling event. Habitat characteristics recorded included percent cover by inorganic sediment (sand, gravel, pebbles etc), submerged macrophyte, floating macrophyte, emergent macrophyte, algae, large woody debris, detritus, roots, and trailing vegetation. Details of inorganic substrate composition were also recorded and included percent cover by bedrock, boulders, cobbles, pebbles, gravel, sand, silt, and clay.

3.4 Surface Water Sampling

Where possible, during each monitoring event, *in situ* water quality data were recorded using calibrated, portable field meters at a depth of approximately 10 cm below the water surface. Variables recorded included pH, oxygen-reduction potential, DO (% and mg/L), EC ($\mu\text{S}/\text{cm}$), turbidity (NTU) and water temperature ($^{\circ}\text{C}$).

Undisturbed water samples were also collected for laboratory analysis of colour, total suspended solids, TN, TP and total recoverable hydrocarbons (TRH). Samples were collected from a depth of approximately 15 cm below the water surface. All water samples were kept cool in an esky while in the field and were refrigerated as soon as possible for subsequent transport to the laboratory. Laboratory analyses were conducted by the ChemCentre, Bentley, WA (a NATA accredited laboratory).

TRH indicate the presence of polar organic compounds which are often prevalent in inorganic substances such as petroleum and diesels. If identified in a sample, a silica gel cleanup (SGC) was conducted, which acts to absorb non-hydrocarbon polar organics during the sample extraction process. The remaining TRH after the cleanup indicates the presence of any petroleum polar hydrocarbons, and their molecular range ($\text{F2} > \text{C10-C16}$ = gasoline/petrol, $\text{F3} > \text{C16-C34}$ = gas oil/diesel). Currently ANZG Default Guideline Values (DGVs) for freshwater systems are predominantly limited to F1 hydrocarbons, with no DGVs for oil or petroleum hydrocarbons (ANZG 2018).

3.5 Photopoints

Photopoints were set up at each site during the 2020 monitoring, or upon inception of the site into the monitoring program, due to project related requirements (e.g. BSM-S-PI-3). Photopoints were marked permanently with a stake and their locations, recorded using a handheld GPS. Photos were taken from the top of the stake (or similar area where stakes were not permitted). Photopoints were revisited on every sampling occasion to note general changes in water level and habitat.

3.6 Black-stripe Minnow Sampling

Annual sampling for populations of BSM used a standardised catch per unit effort (CPUE) approach to provide abundance data on minnows at each site, to allow comparisons of numbers and population structure over time. CPUE was calculated by dividing 24 (hours) by the number of hours fished (net set time), then multiplying by the raw abundance of fish per net. This gave the abundance of fish per net caught within a 24-hour time period. CPUE was then expressed as abundance per site, allowing yearly data comparisons to be made.

At each BSM monitoring site, six double wing fyke nets comprising a double 10 m leader/wing (4 - 6 mm mesh, 1 m drop) and a 5 m hoop, and one single wing fyke net comprising a 5.5 m leader/wing (4 - 6 mm mesh, 0.8 m drop) and a 3 m hoop set overnight. Net set and pick up times were recorded in order to calculate CPUE. Exclusion screens were placed on the opening on each net, to keep out water rats and/or turtles. A floating fauna platform was placed



at the cod-end (closest to the bank) of each fyke net to provide an air space for freshwater turtles / water rats if caught (i.e. broke through exclusion screen).

3.7 Statistical Analysis

One-way and Two-way analysis of variance (ANOVA) was used to test for significant differences in values for water quality parameters, and abundance of target species amongst sites. ANOVAs were performed using Statistical software. Data were first checked to determine whether the assumptions of normality and equality of variance were met, and data were $\log_{10}(x+1)$ transformed where required. Tukey's post-hoc tests were used to examine significant differences between reaches and times.

Multivariate analyses were performed using PRIMER package v7 to investigate differences in water quality variables between site type and sampling event. Analyses applied to the data included the following:

1. Describing pattern amongst the water quality data using ordination techniques. Similarity matrices were based on Euclidean Distance Measure. Data were normalised prior to analysis. Multivariate statistics on water quality were limited to Q3 and Q4 samples (winter-spring) samples due to consistency of data collection (high incidence of dry sites in Q1 and Q2), and also to capture water quality during periods of flow/ inundation, prior to the onset of summer drying and associated physico-chemical changes in water quality that may increase variance in the data.
2. Ordination was by non-metric Multi-Dimensional Scaling (nMDS). Ordinations were depicted as two-dimensional plots based on the similarity matrices.
3. Two-way permutational multivariate analysis of variance (PERMANOVA) was undertaken to determine if there was a significant difference between sites and time period (pre- and post-disturbance), and for significant interactions between these factors. PERMANOVA is a multivariate equivalent to univariate ANOVA, using samples as replicates, and basing analysis on pairwise similarities amongst the data.



4.0 Results and Discussion

4.1 Rainfall

Annual monthly rainfall data for study period 2025-26 (June through May) is presented in Figure 2 (Data for Bunbury – 009965, obtained from BOM 10 June 2026). Total annual rainfall in 2025 (755.6 mm) was above mean annual rainfall (737.3 mm) for the Bunbury area, however down from the previous monitoring period (2024; 923.2 mm). Total annual rainfall per survey year, since surveys in the southern alignment began in 2020, are presented in Table 3.

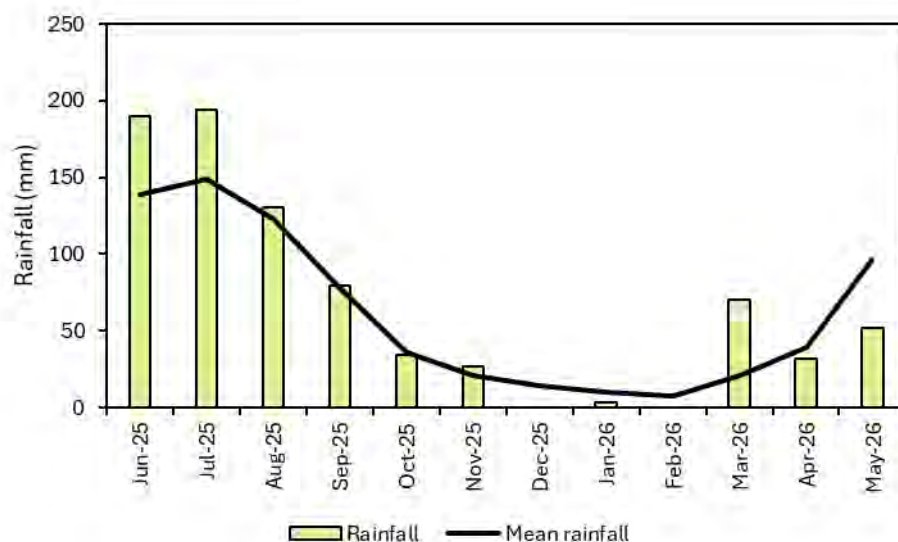


Figure 2. June 2025 to May 2026 monthly rainfall with mean rainfall overlayed (1995 – present).

Table 3. Annual total rainfall (mm) for Bunbury (009965).

Year	Total Rainfall (mm)
2026	156.4*
2025	755.6
2024	932.2
2023	716.4
2022	772.2
2021	963.8
2020	626.8

* incomplete dataset, results through to May 2026



4.2 Habitat

All four wetland sites had a diversity of habitat types that consisted of mineral substrate, emergent macrophyte, floating macrophyte, detritus, trailing vegetation and large woody debris environs (Table 4). Average percentage of each substrate was relatively uniform between sites, with sediment type dominated by sand at each site, followed by silt (Table 5). BSM-S-PI-3 was the only habitat to contain a clay fraction as part of this survey period (Table 5). No algal blooms were present during 2025 sampling, supported by images taken via photopoint monitoring during the sampling period (Appendix B).

Table 4. Average percentage of different habitat types of BSM sites sampled in the current reporting period.

Site	Mineral Substrate	Emergent Macrophyte	Submerged Macrophyte	Floating Macrophyte	Algal Cover	Detritus	Trailing Vegetation	Large Woody Debris
BSM-S-R-1	60	2.5	0	15	0	5	10	7.5
BSM-S-PI-1	75	5	0	0	0	8	10	2
BSM-S-PI-2	95	0	0	1.25	0	1.25	1.25	1.25
BSM-S-PI-3	55	2.5	0	10	0	7.5	15	10

Table 5. Average percentage of substrate types of BSM sites sampled in the current reporting period.

Site	Bedrock	Boulders	Cobbles	Pebble	Gravel	Sand	Silt	Clay
BSM-S-R-1	0	0	0	0	0	90	10	0
BSM-S-PI-1	0	0	0	0	0	90	10	0
BSM-S-PI-2	0	0	0	0	0	95	5	0
BSM-S-PI-3	0	0	0	0	0	85	10	5

Substrate diversity consisted of four types, with sand and silt representing the predominate substrates throughout sampling areas (Figure 3). Gravel substrate was recorded at smaller percentages in both BSM-S-PI-1 in 2022 (10%) and 2024 (20%), and BSM-S-PI-1 in 2022 (5%), whereas clay substrate was recorded on one occasion at BSM-S-R-1 in 2022 (5%) (Figure 3). These occurrences of gravel were associated with construction activities at both sites (BSM-S-PI-1 and BSM-S-PI-2), namely the use of blue metal. Once construction activities were completed, excess gravel had been cleared from the habitat type, as represented in 2025 sampling. Therefore, any impacts of changed habitat associated with blue metal, if any, are likely no longer persistent as BSM sampling sites BSM-S-PI-1 and BSM-S-PI-2.

Habitat composition stayed relatively consistent throughout monitoring periods, with most sites dominated by mineral (MI), emergent vegetation (EMV) and trailing vegetation (TV) (Figure 4). Floating vegetation, common throughout sites BSM-S-PI-2 and BSM-S-R-1, consisted of duck weed from the family Lemnoideae. Of note, was the reduction in floating vegetation percent coverage at reference site BSM-S-R-1 during annual sampling, comparative to 2023 and 2024 sampling periods (Plate 2).



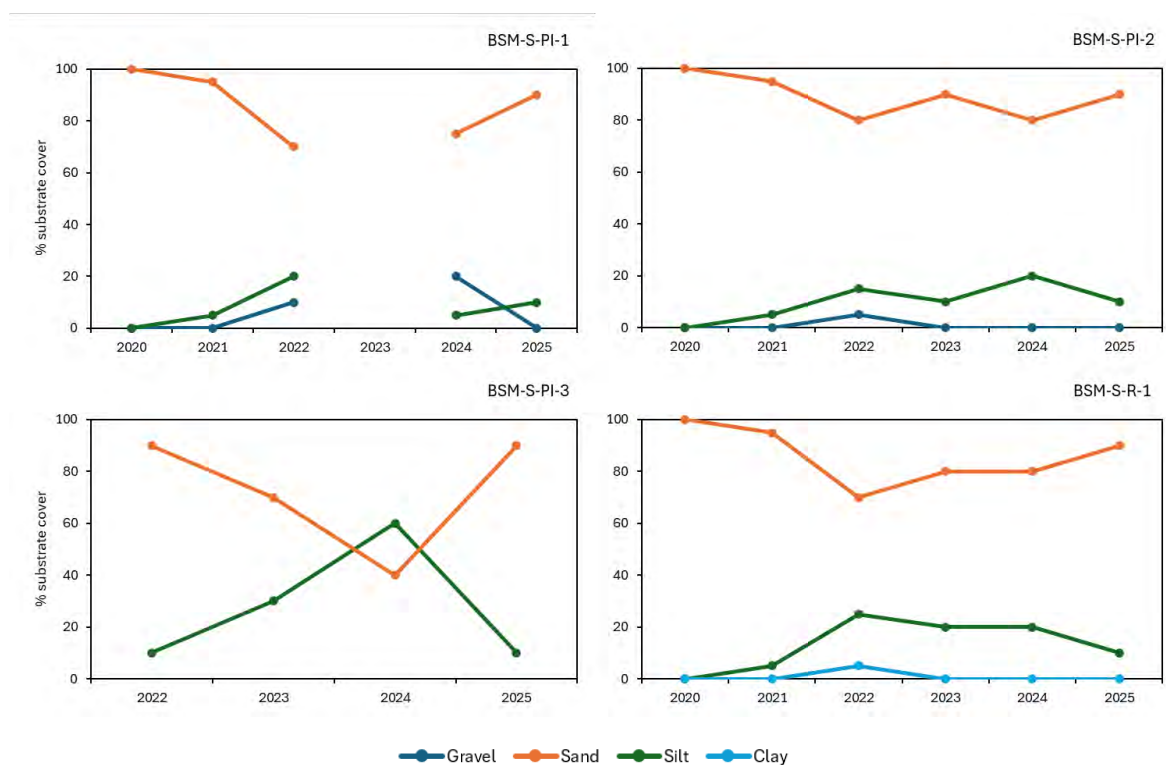


Figure 3. Percentage substrate change over time in BSM sites (2019 – 2025) – Q3 only.



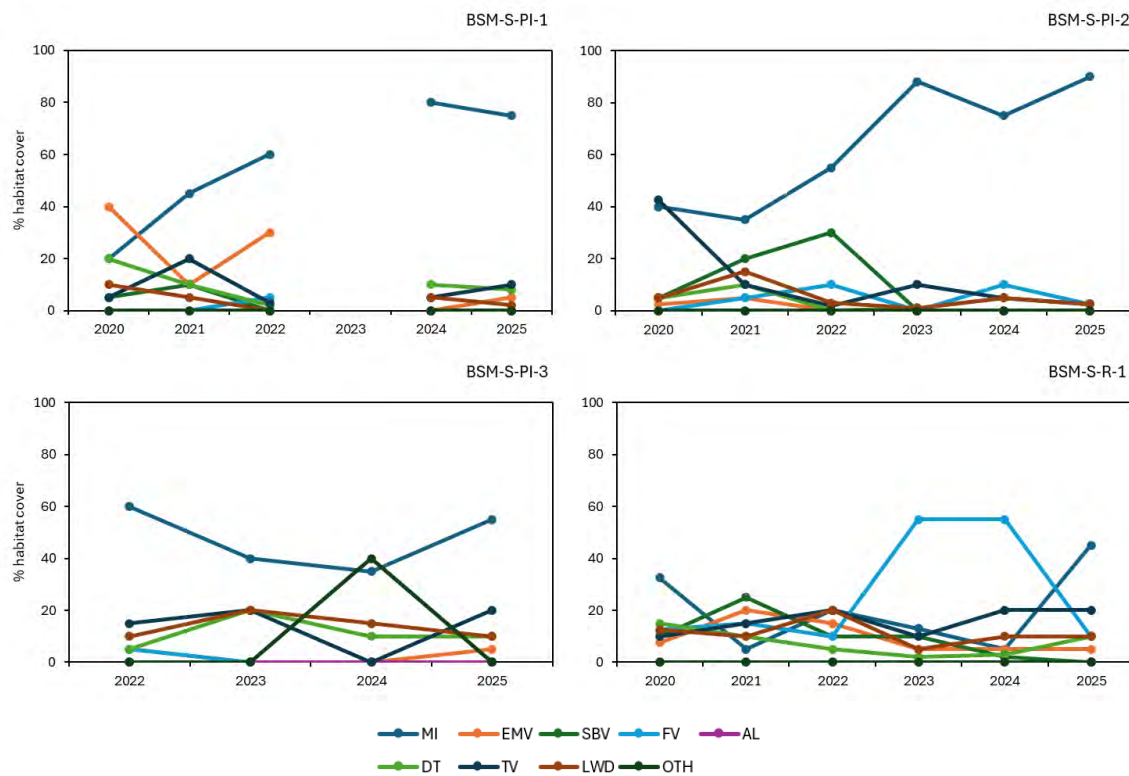


Figure 4. Percentage habitat change over time in BSM sites (2019 – 2025) – Q3 only.
Note: MI = mineral substrate, EMV = emergent vegetation, SBV = submerged vegetation, FV = floating vegetation, AL = algae cover, DT = detritus, TV = trailing vegetation, LWD = large woody debris, OTH = other



Plate 2. Difference in floating vegetation (duck weed) between 2025 (top) and 2024 (bottom left & right).



4.3 Surface Water

4.3.1 Depth

Surface water volume varied throughout the current monitoring period (Table 6). All sites held water on both monitoring occasions (Q3 and Q4), with the exception of BSM-S-PI-1 in Q4 (Table 6). Water depth was estimated at sites with larger 'pool' areas, at times when they held water (BSM-S-R-1 and BSM-S-PI-2). These pool areas are likely to act as refugia for BSM at times when water is scarce (Summer). Maximum water depth ranged from 0.3 m at BSM-N-PI-3, to 2.0 m at BSM-S-PI-2 in Q4 2025 (Table 6).

Table 6. Maximum water depth (m) at each BSM monitoring site, in the current reporting period.

Site	2025	
	Q3	Q4
BSM-S-R-1	1.4	1.3
BSM-S-PI-1	1	DRY
BSM-S-PI-2	0.5	2
BSM-S-PI-3	1.2	0.3

4.3.2 BSM Monitoring Sites

In the current sampling scope, sites held water on both sampling occasions (September and December 2025), with the exception of December sampling at BSM-S-PI-1 (Table 7).

In situ water quality within all BSM sites during 2025 monitoring was characterised by slightly acidic to slightly basic pH (6.5 – 7.67), very low to high dissolved oxygen levels (7– 106.1%), and cool to moderate temperatures (13.9 – 27.6 °C) (Table 7). EC values ranged from 411 to 1137 µS/cm at sites throughout 2025/26 sampling. Turbidity readings were within, or below the range of ANZG (2018) guidelines at all sites on all occasions (range 3.54 – 12.1) (Table 7).

pH was below the guideline values (ANZG 2018) for the protection of slightly/moderately disturbed wetland ecosystems in the southwest of W.A. (pH 7 – 8.5) on all occasions during the 2025/26 monitoring period, with the exception of BSM-S-PI-2 in December (pH = 7.67) (Table 7). Exceedances of pH values were however, still within the known pH range for BSM (as low as 4.5; Allen *et al.* 2002). Dissolved oxygen (DO%) concentrations were outside the guideline value of 90%-120% at all sites on all sampling occasions, with the exception of BSM-S-PI-2 in December 2025 (106.1%) (Table 7). Of note, was the extremely low measurement of DO% at BSM-S-R-1 during annual monitoring (7%; Table 7), the second lowest measurement of DO at this site since surveys began in 2020 (5% - Q1 2022; Appendix A).



Table 7. *In-situ* water quality results from BSM southern sites sampled in 2025/26 with ANZG (2018) default trigger values (DTVs) for species protection for slightly disturbed ecosystems, relevant to wetlands in the South-West region of Australia (values in exceedance of guideline values are highlighted in grey).

Site	Date	Temp (°C)	Cond (µs/cm)	pH (H+)	Redox (mV)	Turbidity (NTU)	DO (%)	DO (mg/L)
ANZG (2018) DTVs for wetlands in SW Australia			300-1500	7-8.5		10-100	90-120	
BSM-S-R-1	01-09-2025	13.4	478	6.5	-9.9	11.2	7	0.48
	02-12-2025	22.2	1137	6.83	110.5	6.52	34.6	3.21
BSM-S-PI-1	03-09-2025	16.1	426	6.72	81	7.08	36.1	3.54
	02-12-2025	DRY						
BSM-S-PI-2	01-09-2025	17.2	411	6.73	73.9	6.2	38.8	3.73
	01-12-2025	27.6	829	7.67	134.6	12.1	106.1	8.75
BSM-S-PI-3	03-09-2025	13.9	430	6.61	84.9	6.43	16.2	1.65
	02-12-2025	18.8	920	6.84	-80.1	3.54	18.7	1.72

Total suspended solids (TSS) ranged from 2 mg/L at BSM-S-PI-3 in December, to 390 mg/L at BSM-S-R-1 in September 2025 (Table 8). Colour ranged from 410 TCU at BSM-S-R-1 in September, to 830 at the same site in December (Table 8).

Total recoverable hydrocarbons were recorded at all sites on at least one occasion during the current survey period (Table 8). After silica-gel clean up (SGC), F2 hydrocarbons (>C10-C16; gasoline/petrol) were still detectable at BSM-S-R-1 (72 µg/L), and at BSM-S-PI-3 (27 µg/L) in September sampling. F3 hydrocarbons were also still present at BSM-S-PI-2 (130 µg/L) during December (Table 8).

Currently, ANZG Default Guideline Values (DGVs) for freshwater systems are limited, with no DGVs for oil or petroleum hydrocarbons (ANZG 2018). Some sources present in TRH measurements include polar compounds from natural organic matter (NOM), which can be comprised of tannins (CRC Care 2018), which may explain the presence of TRH at some sites with high colour/tannins. These fractions however are likely removed via SGC. Tsvetnenko (1998) used methods to derive a final chronic value of 7 µg/L for total petroleum hydrocarbons (TPH), however it is noted that these are only applicable to the US (USEPA 1994), with a limited amount of flow-through toxicity data available for freshwater environments, particularly in an Australian context. While low-level TRH fractions were detected post-SGC at select sites (BSM-S-R-1 and BSM-S-PI-3), statistical analyses indicate no significant difference between pre- and post-disturbance conditions (Section 4.2.1.1). Furthermore, post-SGC TRH remained below detection limits at BSM-S-PI-2 during December 2025. Consequently, water quality data collected to date does not support inferring TRH, at the levels being recorded, is a driver of BSM absence at BSM-S-PI-2. Further surveys should also take into account all pre-disturbance conditions and subsequent measurements of TRH, as to whether these are significant to BSM populations at each site (determined by univariate and multivariate analysis).

Measurements of TN and TP were greater than ANZG DGVs on all occasions, at all sites during the current sampling period (Table 8).

Historic results (2019 - present) from water quality sampling can be found in Appendix A.



Table 8. Laboratory analysed water quality results from all black-stripe minnow sites sampled in 2025 (F: fraction number). Values in grey identify presence of TRH.

Site	Date	Colour (TCU)	TN (mg/L)	TP (mg/L)	TSS	F1 (µg/L)	F2 (µg/L)	F3 (µg/L)	F4 (µg/L)	Total TRH (µg/L)
ANZG (2018) DGVs for wetlands in SW Australia			1.5	0.06						
BSM-S-R-1	01-09-2025	830	4.2	0.66	390	<25	220	140	<100	350
	02-12-2025	410	3.8	0.39	5	<25	50	110	<100	<250
BSM-S-PI-1	03-09-2025	760	4.2	0.79	6	<25	<25	<100	<100	<250
	02-12-2025	DRY								
BSM-S-PI-2	01-09-2025	750	4	0.76	6	<25	<25	<100	<100	<250
	01-12-2025	600	4.6	0.81	24	<25	<25	300	<100	300
BSM-S-PI-3	03-09-2025	770	4.2	0.81	5	<25	100	110	<100	<250
	02-12-2025	730	2.9	0.38	2	<25	26	130	<100	<250
TRH (after silica gel clean-up)										
							F2 (µg/L)	F3 (µg/L)	F4 (µg/L)	
BSM-S-R-1	01-09-2025						72	<100	<100	
	02-12-2025						<25	<100	<100	
BSM-S-PI-2	01-12-2025						<25	130	<100	
BSM-S-PI-3	03-09-2025						27	<100	<100	
	02-12-2025						<25	<100	<100	

Several water quality variables showed significant differences in concentrations spatially, with significant differences (Two-way ANOVA, $p < 0.05$) between site types (Table 9). Patterns in variance of analytes with significant differences is presented in Figure 3 – 6. There were no significant differences between pre- and post-disturbance, however there were significant differences between the interaction of site and disturbance (pre and post construction) for temperature and colour ($p < 0.05$) (Table 9). Temperature, pH, and DO (%) were all significantly different between sites, with PI site BSM-S-PI-2 significantly different from all other sites for all three analytes (Table 9).

Further analysis between pre and post conditions at site BSM-S-PI-2 indicated that there were no significant differences in pre and post conditions for pH ($p = 0.198$) or DO% ($p = 0.264$), however there was a significant different in temperature ($p = 0.004$), with water temperature significantly higher post disturbance (25.1°C), comparative to pre disturbance conditions (14.8°C). This was still evident for analysis of Q3 and Q4 data only (due to an absence of water at BSM-S-PI-2 during Q1 and Q2 monitoring periods for pre-disturbance monitoring) with significant differences observed in temperature only ($p = 0.026$).

Sites BSM-S-PI-3 and BSM-S-PI-1 recorded significantly higher values of colour, compared to BSM-S-PI-2 and BSM-S-R-1 (Table 9).

There were no other significant differences in water quality data for BSM sites.



Table 9. Summarised two-way ANOVA results examining differences in water quality between year and site. Variables with a significant difference are presented below. Arranged in ascending order of mean value, a common line joins levels that were not significantly different (Tukey post-hoc).

Variable	Source	df	F	p-value	Tukey's Post-hoc			
Temp					BSM-S-PI-1	BSM-S-PI-3	BSM-S-R-1	BSM-S-PI-2
	Site	3	6.41	0.001	16.3	16.3	16.9	21.6
	PrePost	1	27.82	<0.001				
	Site*PrePost	2	1.33	0.275				
pH					BSM-S-R-1	BSM-S-PI-1	BSM-S-PI-3	BSM-S-PI-2
	Site	3	5.55	0.003	6.7	6.74	6.85	7.55
	PrePost	1	1.57	0.217				
	Site*PrePost	2	0.51	0.479				
DO%					BSM-S-PI-3	BSM-S-PI-1	BSM-S-R-1	BSM-S-PI-2
	Site	3	6.88	<0.001	24.4	32.7	40.3	76.7
	PrePost	1	0.61	0.438				
	Site*PrePost	2	1.59	0.216				
Colour					BSM-S-PI-2	BSM-S-R-1	BSM-S-PI-3	BSM-S-PI-1
	Site	3	4.04	0.014	502.6	600.6	725	735
	PrePost	1	2.69	0.109				
	Site*PrePost	2	5.74	0.022				



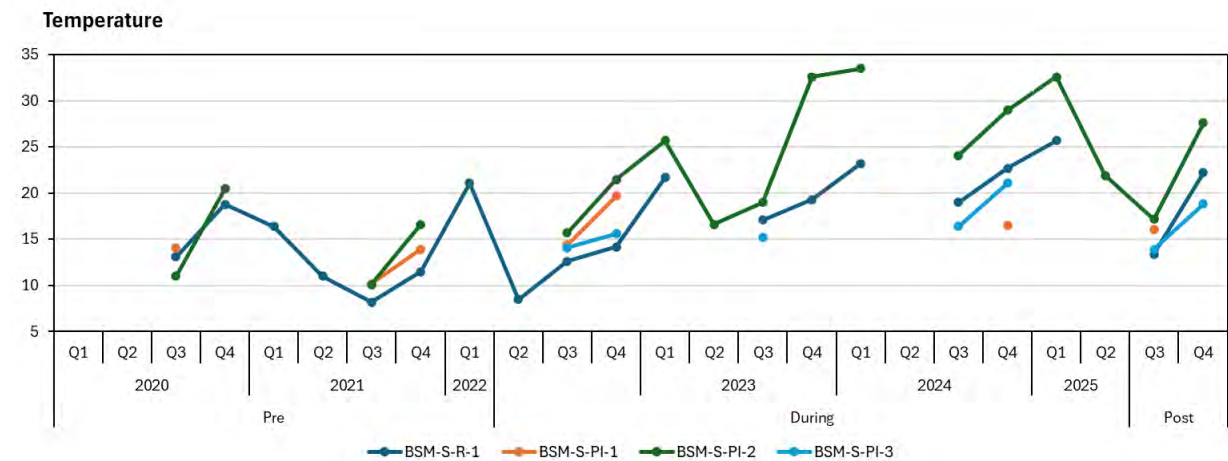


Figure 5. Temperature changes over time at all BSM sites

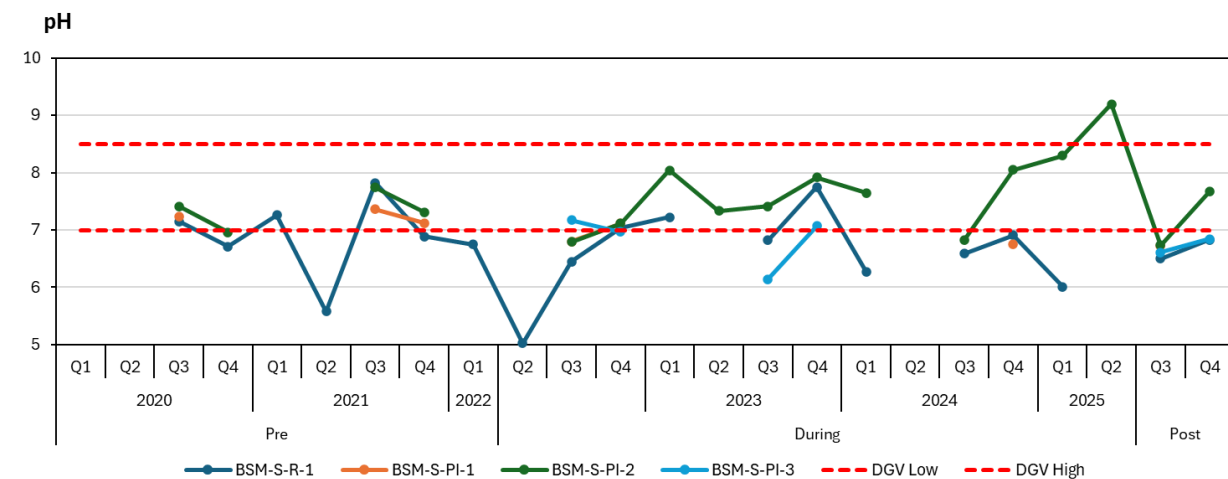


Figure 6. pH changes over time at all BSM sites

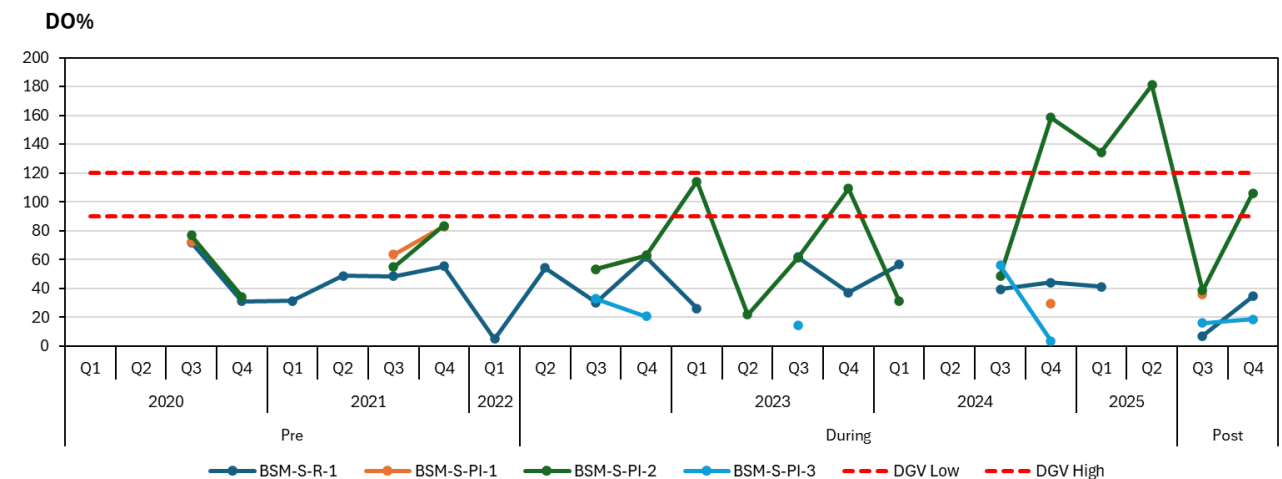


Figure 7. DO (%) changes over time at BSM sites



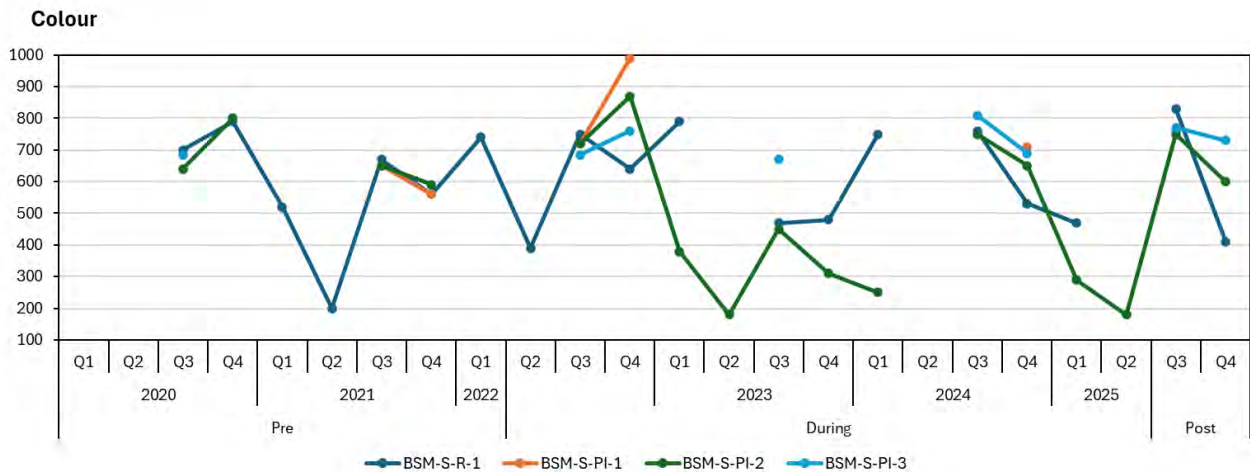


Figure 8. Colour (TCU) changes over time at BSM sites

PERMANOVA multivariate analysis of site water quality showed no significant differences over time (pseudo-F = 1.81, $P = 0.163$), site (pseudo-F = 1.27, $P = 0.254$), or pre- vs. post-disturbance timeframes (pseudo-F = 2.01, $P = 0.125$). The interaction term was not significant, indicating that changes over time were generally consistent among sites.

Water quality samples were ordinated using PCO, which found PCO1 (41.5 % of total variation) was primarily associated with differences in TSS and hydrocarbons (Total TRH, >C10-C16, >C16-C34) (Figure 9). PCO2 (30.9% of total variation) was correlated with EC, temperature and colour. Given that two reference site samples separated along the PCO1 axis (e.g. BSM-S-R-1 2020-Q4 = 860 mg/L total TRH), it is likely that sporadic high values in hydrocarbons were responsible for this component of variation. Multivariate analyses were also conducted on water physico-chemistry (i.e. excluding hydrocarbons), including data from 2019 to 2025. Ordination of this data showed no clear separation of sites, with axis PCO1 (54.8% of total variation) primarily associated with EC and colour, and axis PCO2 (25.2% of total variation) correlated with DO (% and mg/L), TSS, temperature and turbidity (Figure 10). PERMANOVA showed no significant differences between sites (pseudo-F = 1.28, $P = 0.235$), years (pseudo-F = 1.91, $P = 0.066$), pre- and post-disturbance timeframes (pseudo-F = 1.16, $P = 0.309$), or the interaction term (pseudo-F = 0.56, $P = 0.8$).

Temporal trajectories of water physico-chemistry were ordinated to visualise differences over time at each site (Figure 11). Trajectories showed shifts between pre- and post-construction, notably at BSM-S-PI-1 and BSM-S-PI-2. However, similar patterns were also observed at reference site BSM-S-R-1, indicating that these shifts are likely attributable to natural variation of sites over time, rather than change in response to potential construction impacts (Figure 11). Further monitoring is recommended to ensure that trends are consistent between impact and reference sites.



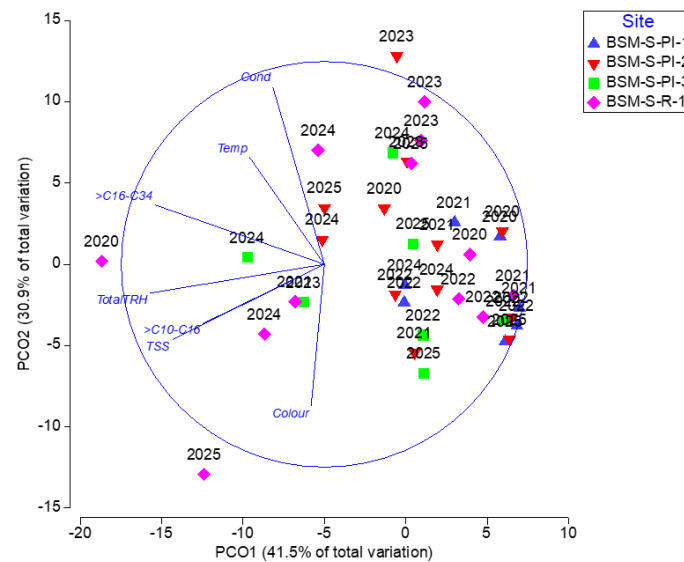


Figure 9. Principal co-ordinates (PCO) of water quality analytes recorded at BSM monitoring sites during Q3 and Q4. Note that hydrocarbons were not available for 2019 samples and were thus excluded. Water quality vectors overlay at Pearson's correlation >0.6.

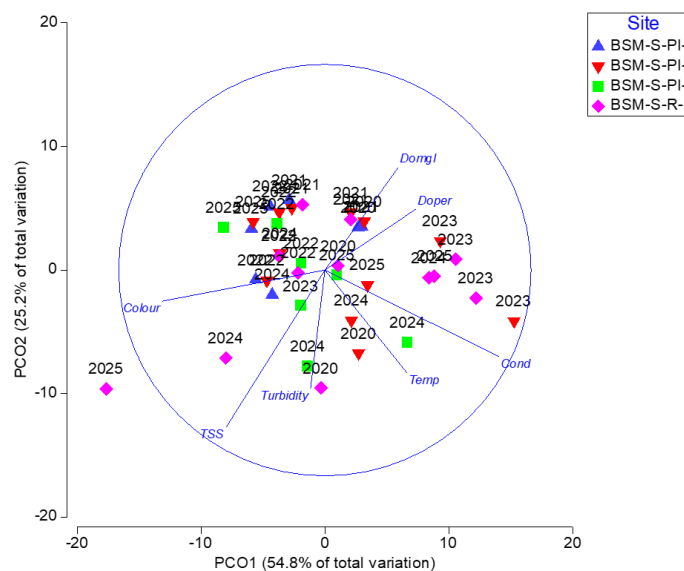


Figure 10. Principal co-ordinates (PCO) of water quality analytes (physico-chemistry only, excl. hydrocarbons) recorded at BSM monitoring sites during Q3 and Q4. Water quality vectors overlay at Pearson's correlation >0.5.



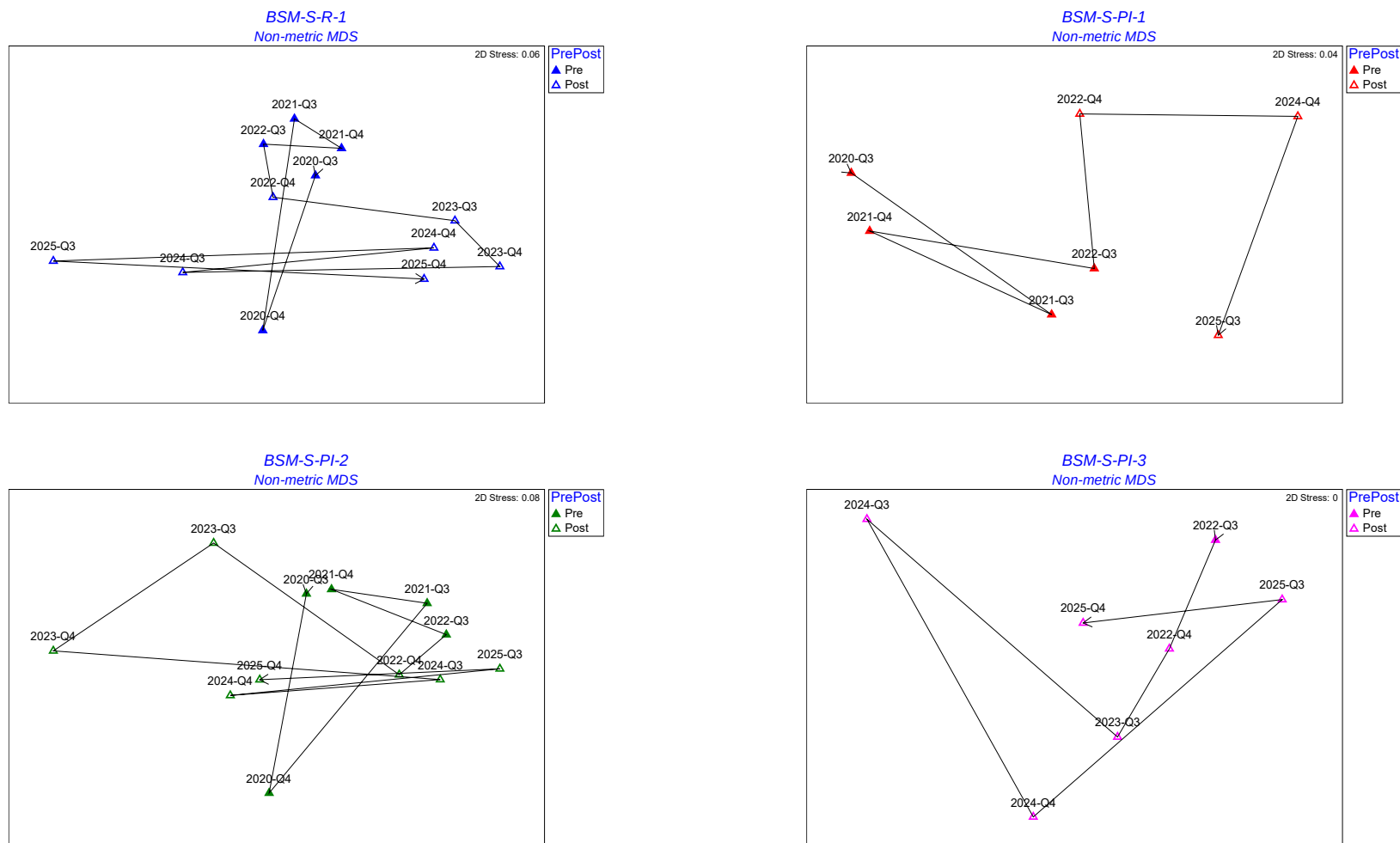


Figure 11. NMDS ordinations of water quality samples (physico-chemistry from Q3 and Q4) from each BSM monitoring site, labelled by pre- post-disturbance timeframe, with temporal trajectories overlain.



4.3.3 UFI Wetland Monitoring Sites

Conservation Category and Resource Enhancement Wetlands UFI-14478, UFI-1117 and UFI-15493 were holding water during both sampling occasions (September and December 2025), with the exception of December sampling at UFI-15493 (Table 10).

In situ water quality within all UFI sites during 2025 monitoring was characterised by slightly acidic to circumneutral pH (6.26 – 7.26), very low dissolved oxygen levels (2.2– 30.9%), and cool to moderate temperatures (12.2 – 25.5 °C) (Table 10). EC values ranged from 112 to 792 µS/cm at sites throughout 2025/26 sampling, with only one site, UFI-14478, falling outside of the lower DTV range for EC (112 µS/cm). Turbidity readings were within, or below the range of ANZG (2018) guidelines at all sites on all occasions (range 0.65 – 6.47) (Table 10).

pH was below the guideline values (ANZG 2018) for the protection of slightly/moderately disturbed wetland ecosystems in the southwest of W.A. (pH 7 – 8.5) at site UFI-1117 on both sampling occasions during the 2025/26 monitoring period (Table 10). Dissolved oxygen (DO%) concentrations were outside the guideline value of 90 - 120% at all sites on all sampling occasions (Table 10).

Table 10. *In-situ* water quality results from UFI-wetlandsampled in 2025/26, with ANZG (2018) default trigger values (DTVs) for species protection for slightly disturbed ecosystems, relevant to wetlands in the South-West region of Australia (values in exceedance of guideline values are highlighted in grey).

Site	Date	Temp (°C)	Cond (µS/cm)	pH (H+)	Redox (mV)	Turbidity (NTU)	DO (%)	DO (mg/L)
ANZG (2018) DTVs for wetlands in SW Australia			300-1500	7-8.5		10-100	90-120	
UFI-1117	04-09-2025	12.2	785	6.26	35.4	1.74	13.5	1.42
	01-12-2025	25.5	487	6.68	94.4	6.47	30.9	2.54
UFI-14478	04-09-2025	13.6	792	7.0	-17.7	1.02	2.2	0.19
	01-12-2025	21	112	7.25	106.4	4.9	28.5	2.58
UFI-15493	04-09-2025	12.9	542	7.26	68.7	0.65	7.5	0.78
	DRY							

Total suspended solids (TSS) ranged from 2 mg/L at UFI-14478 in December, to 140 mg/L at the same site in September 2025 (Table 11). Colour ranged from 180 TCU at UFI-15493 in September, to 1900 at UFI-1117 in the same sampling event (Table 11).

Total recoverable hydrocarbons were recorded at all sites during all sampling events (Table 11). After gel-silica clean up, F2 hydrocarbons (>C10-C16; gasoline/petrol) were still detectable at UFI-1117 (29 µg/L) and UFI-15493 (27 µg/L) in September sampling, and F3 hydrocarbons were still present at UFI-15493 (100 µg/L) during the same sampling event (Table 11).

Measurements of TN and TP were greater than ANZG DGVs on all occasions, at all sites during the current sampling period (Table 11).

Historic results from water quality sampling at UFI wetland sites can be found in Appendix A.



Table 11. Laboratory analysed water quality results from all black-stripe minnow sites sampled in 2025 (F: fraction number). Values in grey identify presence of TRH.

Site	Date	Colour (TCU)	TN (mg/L)	TP (mg/L)	TSS	F1 (µg/L)	F2 (µg/L)	F3 (µg/L)	F4 (µg/L)	Total TRH (µg/L)
ANZG (2018) DGVs for wetlands in SW Australia			1.5	0.06						
UFI-1117	04-09-2025	1900	4.9	0.11	6	<25	<25	130	<100	<250
	01-12-2025	1200	2.9	0.13	33	<25	63	160	<100	<250
UFI-14478	04-09-2025	480	2.5	0.11	140	<25	<25	200	<100	<250
	01-12-2025	710	2.6	0.084	2	<25	<25	140	<100	<250
UFI-15493	04-09-2025	180	1.1	0.094	7	<25	240	150	<100	390
	DRY									
TRH (after silica gel clean-up)										
							F2 (µg/L)	F3 (µg/L)	F4 (µg/L)	
UFI-1117	04-09-2025						<25	<100	<100	
	01-12-2025						29	<100	<100	
UFI-14478	04-09-2025						<25	<100	<100	
	01-12-2025						<25	<100	<100	
UFI-15493	04-09-2025						27	100	<100	

Both DO and turbidity showed significant differences in concentrations spatially and temporally, with significant differences (Two-way ANOVA, $p < 0.05$) between site types, years and the interaction between site and year (Table 12). Patterns in variance of analytes with significant differences is presented in Figure 13 - 14, with singleton measurements likely resulting in significant differences observed in DO% (Figure 12), and construction activities associated with UFI-1117 influencing turbidity during 2023 and 2024 (Figure 13). For both analytes, UFI-1117 showed a significant difference comparative to other UFI wetland sites (Table 12).

There were no other significant differences in water quality data for UFI wetland sites.



Table 12. Summarised two-way ANOVA results examining differences in water quality between year and site. Variables with a significant difference are presented below. Arranged in ascending order of mean value, a common line joins levels that were not significantly different (Tukey post-hoc).

Variable	Source	df	F	p-value	Tukey's Post-hoc			
DO%					UFI-14478	UFI-15493	UFI-1117	
	Site	2	7.12	0.01	19.6	26.8	39.5	
	Year	3	8.41	0.003				
	Site*Year	6	3.78	0.027				
					2025	2023	2022	2024
					2.9	3	22.5	24
Turbidity					UFI-15493	UFI-14478	UFI-1117	
	Site	2	34.36	< 0.001	3.6	5.3	20.7	
	Year	3	21.92	< 0.001				
	Site*Year	6	9.43	< 0.001				
					2022	2025	2023	2024
					2.9	3	22.5	24



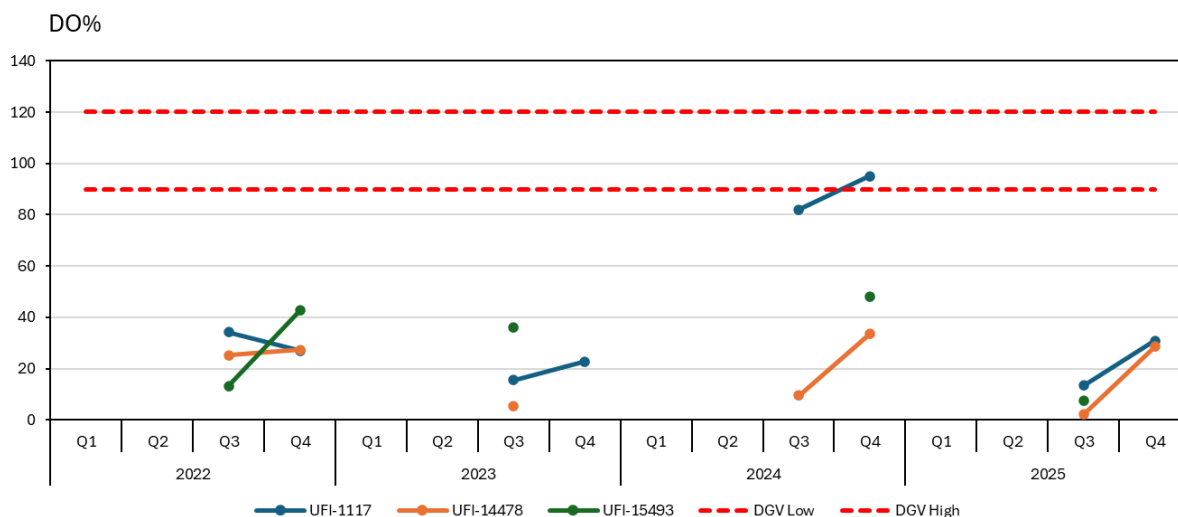


Figure 12. DO (%) changes over time at UFI wetland sites

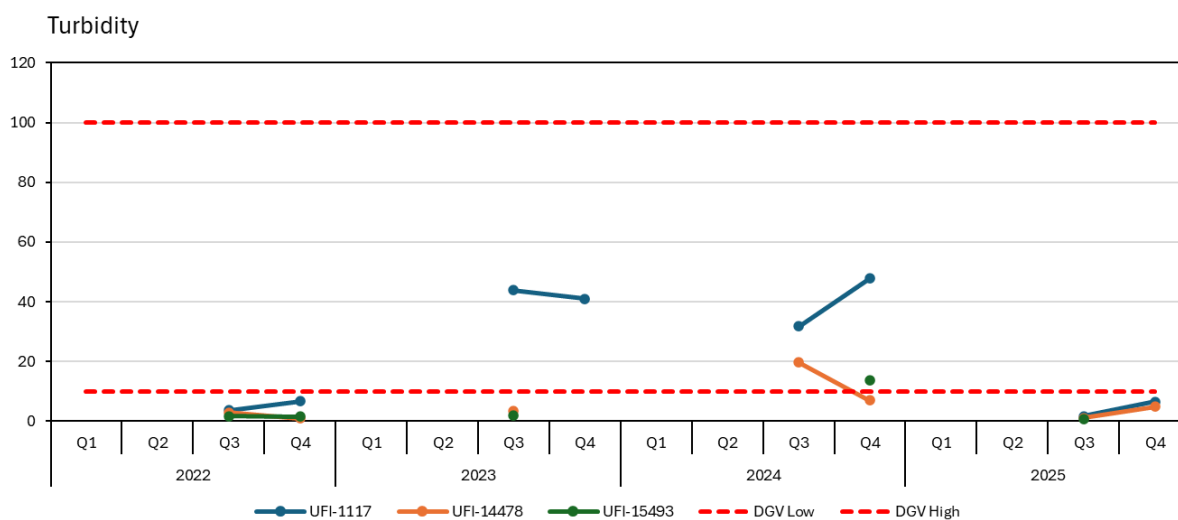


Figure 13. Turbidity (NTU) changes over time at UFI wetland sites



4.3.4 Photopoint Monitoring

4.3.4.1 BSM sites

Infrastructure associated with the BORR has now been completed at sites within the southern alignment, with the installation of a traffic overpass as BSM-S-PI-1 (Plate 3), and the installation of culverts and a single carriageway at BSM-S-PI-2 (Plate 4). Additional photopoints are provided in Appendix B.

The installation of infrastructure was in accordance with State and Commonwealth environmental approvals for the Project. The design has incorporated a number of elements to mitigate the impact to BSM at this location, including a large overpass to keep habitat type intact (see Section 4.2), and box culverts to maintain a low flow, and baffles on the walls of the culvert to assist BSM. Additionally, minimal in-stream habitats were altered as part of the construction activities, with the use of an over-pass keeping habitat within site BSM-S-PI-1 unaltered, and construction activities occurring downstream of sampling site BSM-S-PI-2. Flow and movement of BSM through these areas, in particular BSM-S-PI-2, should however be monitored closely in future sampling events.



Plate 3. Differences in sampling habitat and the development of construction at BSM-S-PI-1. Top left: Q2 2023, top right: Q2 2024, bottom left: Q2 2025, bottom right: Q4 2025.





Plate 4. Ongoing construction works at BSM-S-PI-2 from photopoint monitoring locations. Top left: Q2 monitoring 2023, top right: Q2 2024, bottom left: Q2 2025, bottom right: Q4 2025.



4.3.4.2 UFI-wetlands

Infrastructure associated with the BORR Stage 1 has now been completed at and adjacent to UFI-wetlands within the southern alignment. Of note, was the installation of culverts and run-off drains associated with the construction of the BORR at site UFI-1117. This infrastructure (Plate 5) feeds away from wetland UFI-1117, underneath the BORR alignment.

The installation of infrastructure was in accordance with State and Commonwealth environmental approvals for the Project. The design has incorporated a number of elements to mitigate the impact to UFI-listed wetlands at this location. No additional infrastructure was determined to have any influence on UFI-listed wetlands as part of this monitoring program.



Plate 5. Infrastructure (culvert / run-off drain) into receiving wetland UFI-1117



4.3.5 Annual BSM Population Monitoring

In 2025, singletons of BSM were recorded at site BSM-S-PI-1 and BSM-S-PI-3. These observations represented the first record of BSM at both sites since sampling in 2022 (Figure 14). Of note was the absence of minnows at BSM-S-R-1, representing the first sampling period since surveys began (2020) to not observe minnows at the reference sampling site (Figure 14).

A Kruskal-Wallis test determined that there was a significant difference in abundance per net by site ($\chi^2 = 26.07$, $df = 3$, $p < 0.001$), but not between pre- and post-disturbance ($\chi^2 = 0.772$, $df = 1$, $p = 0.38$). Pairwise comparisons between sites showed a significant difference in abundance ($p < 0.05$) between BSM-S-R-1 and all other PI sites, over time.

The presence of BSM at two out of the three impact sites (BSM-S-PI-1 and BSM-S-PI-3) on 5 Mile Brook in 2025 sampling indicates that populations are present in this system. BSM-S-PI-2 is situated ~1 km upstream of BSM-S-PI-1, and the current sampling site sits immediately upstream of the newly installed box culvert. It is noted that this non-detection could be due to a number of environmental, hydrological and sampling factors, as well as the culverts creating a constraint to fish movement. This non-detection is evident at the southern BSM reference site (BSM-S-R-1) yielding no catch for this monitoring period, which could represent wider spatial trends within the monitoring area. Future sampling should account for this. Continued annual sampling should assist in assessing if the culverts are unsuitable for fish passage by presence of BSM at site BSM-S-PI-2.

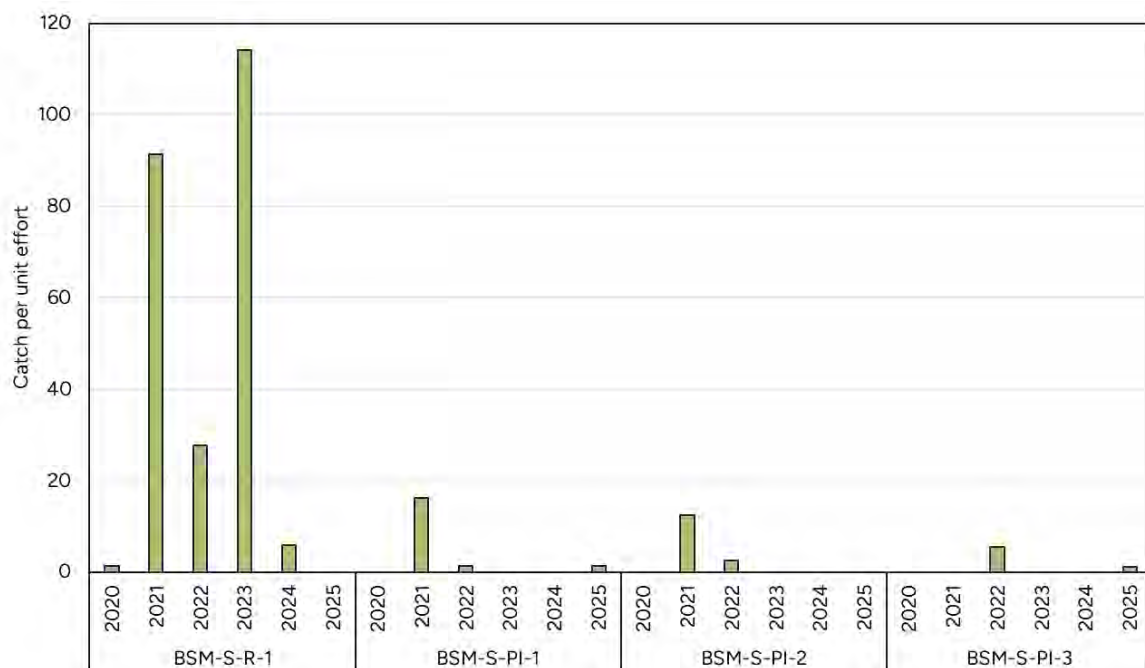


Figure 14. Calculated Catch Per Unit Effort (CPUE) data from 2020 – 2025 for BSM



5.0 Summary and Conclusions

There have been no attributable impacts to the hydrological regime and water quality of any BSM habitat associated during the reporting period of the Proposal. Differences in surface water quality detected for both sites (impact and reference) and over time (pre and post construction) are deemed to be site specific and seasonal.

5.1 Black-stripe Minnows

Significant differences in water quality parameters (temperature, pH, DO and colour) at BSM locations were observed between sites only, with significant differences between the interactions of site and type for both temperature and colour. No significant differences were recorded between pre and post construction water quality results.

For three out of four parameters (temperature, pH, and DO%), significant spatial differences were observed between BSM-S-PI-2, compared to other monitoring sites. After further analysis, temperature was the only parameter to show a significant difference in pre and post disturbance monitoring at site BSM-S-PI-2. Whilst mean temperature observed at BSM-S-PI-2 is still within ranges preferable to BSM (11 - 30°C), it is noted that BSM will find areas of cooler water (through thermal stratification) on hot days, with preferred temperatures around 15°C on occasions where surface water temperature climbs above 26°C (Smith *et al.* 2002). Habitats that hold water all-year round may not make suitable refuges for BSM, if temperatures are consistently above 26°C for extended periods.

Noting that BSM prefer sites with a more acidic pH (range of 3 – 6.5; Morgan *et al.* 1998), an increase in pH in recent survey periods at site BSM-S-PI-2 may be influencing the occurrence of BSM therein. Whilst there have been no significant differences observed between pre and post disturbance at site BSM-S-PI-2, it is noted that pH levels have reached values as high as 9.2 during recent, warmer months (data from Q2, 2025). This may have influenced populations dynamics at site BSM-S-PI-2, particularly if these areas were used as refuges for aestivating BSM. pH ranges within site BSM-S-PI-2 should be considered in relation to the presence or absence of BSM in future monitoring periods. It is currently unclear what the cause of these rising pH values are within this area, however the degradation of water quality at the site in warmer months (to a receded pool upstream of the sampling site) may be an influencing factor (Plate 6). It is also noted that high levels of TRH have been identified at this site in previous monitoring periods (after SGC; F3 = 1100µg/L in Q1 2024, F3 = 3600µg/L in Q2 2025). Further investigation into the source-sink relationship between this pool, and the sampling site during BSM monitoring, should be considered, if BSM are absent in future monitoring periods.





Plate 6. Receded pool at site BSM-S-PI-2 during Q1 2025.

It is currently unclear of the impacts of fluctuating DO% on populations of BSM, with little to no published research on their preferred ranges. It is however noted that due to their aestivating life cycle, they should have some tolerance to low DO environments, due to their lowered metabolic rate and state of dormancy during these periods. This however does not factor into breeding season, where higher metabolic rates, and more activity is required to disperse. Higher DO% measurements at BSM-S-PI-2 are not likely impacting the presence (or lack-thereof) of BSM, however this may have influenced catch numbers at site BSM-S-R-1, where no BSM were recorded in 2025, coinciding with an extremely low DO% (7%).

BSM catch numbers were low throughout the entire monitoring area during the 2025 survey, with no BSM observed at reference site BSM-S-R-1 for the first time since surveys began in 2020. It is currently unclear to the reasoning behind this, however low measurements of DO% (7%) were recorded during annual BSM surveys in 2025. Of note, was the reduction of floating vegetation during 2025 monitoring at the reference site. Not only does this potentially influence DO% at the site, as duckweed produces oxygen via photosynthesis, it also acts to reduce excess nutrients (TN and TP) which may cause harmful algal blooms. Whilst minimal algal cover was recorded as part of the current monitoring period, future surveys should consider the potential impact that these may have on monitoring sites. In addition, further surveys should consider the influence that low DO% may be having on sites throughout the survey.

Any changes observed in habitat, associated with construction activities at BSM-S-PI-1, have likely been mitigated since the completion of construction, and therefore are not likely to be having a significant impact on BSM as part of the current monitoring scope. This is supported by the presence of BSM at site BSM-S-PI-1 during the 2025 monitoring period. Further surveys are required at site BSM-S-PI-2 to determine if the culvert between BSM-S-PI-1 and BSM-S-PI-2 could be a barrier to fish passage. However, it is important to note that BSM-S-PI-1 resides within private property and there are no controls in place to ensure external factors are not influencing the BSM populations in this location. There may also be value in expanding the sampling in future monitoring programs to target areas for directional movement of BSM through culverts, when the wetland is inundated.

A summary of observed changes is provided in Table 13.



Table 13. Summary of observed changes in BSM monitoring sites between pre- and post-disturbance timeframes.

Site	Water quality	Habitats	BSM population	Adverse Impact inferred
BSM-S-PI-1 (Impact)	Water quality parameters similar between pre and post conditions.	Habitat largely similar to pre-construction, mainly due to the use of an overpass to maintain sediment and habitat within the BSM survey site. Gravel (blue metal) was observed during construction; however site has returned to pre-construction conditions.	BSM recorded in 2025. BSM present in current monitoring period, however monitoring is still recommended to ensure that populations are healthy / observed over multiple years.	No, however repeat observation of BSM in annual surveys is advised.
BSM-S-PI-2 (Impact)	Water quality parameters similar between pre and post conditions, with the exception of temperature. Site was significantly higher than other monitoring sites for temperature, DO% and pH, indicating spatial differences. Spike in pH during Q2 2025 may have influenced presence of BSM on this occasion.	Habitat substrate similar to previous monitoring years. Presence of road / bridge with box culverts immediately downstream of sampling site. Large pool on site retains water year-round, and likely acts as a refuge for BSM during aestivation.	No BSM populations observed since 2023. Historically, low numbers have been recorded at site, however presence of BSM is important to ensure no construction related impacts. Further monitoring required.	No, not at this stage. Additional surveys should assist in monitoring BSM movement and potential relationships between receding pool upstream of the site.
BSM-S-PI-3 (Impact)	Water quality parameters similar between pre and post conditions. Site acts as downstream monitoring site for upstream construction activities.	A diverse range of aquatic habitats remain, no clear transition in aquatic habitats	BSM recorded in 2025. BSM present in current monitoring period, however monitoring is still recommended to ensure that populations survive.	No
BSM-S-R-1 (Reference)	Water quality parameters similar between pre and post conditions. Low DO% recorded during BSM annual monitoring may have influenced catch numbers.	Habitat diversity largely similar, with the exception of reduced floating vegetation in 2025 A diversity of aquatic habitats, with relatively consistent proportions of bare mineral substrate relative to other habitat types.	No BSM recorded in 2025, for the first time since monitoring commenced in 2020.	N/A



5.2 UFI Wetlands

Significant differences in water quality for the analyte of dissolved oxygen are likely explained by high, once-off measurements at site UFI-1117 during 2024. Spikes in turbidity at site UFI-1117, were likely associated with construction periods and subsequent activities (2023 & 2024). Culverts and drains that manage run-off from the BORR were sampled as part of this monitoring, as they now make up the majority of the wetland sampling site (UFI-1117). Measurements of both DO% and turbidity have since returned to those observed prior to construction, as observed in groupings of years (Tukey post-hoc). All UFI sites have previously been surveyed for the presence of BSM, with no BSM observed on any previous sampling occasions. With this in mind, potential impacts of construction activities on UFI sites, in particular UFI-1117, are minor.

UFI wetlands will continue to be monitored as part of ministerial condition 2-1(2). A summary of the observed changes (if any) to UFI-wetlands can be found below in Table 14.

Table 14. Summary of observed changes in UFI-wetlands between pre- and post-disturbance timeframes.

Site	Water quality	Habitats	Adverse Impact inferred
UFI-1117	An increase in turbidity and DO% during construction (2023 and 2024). Water quality has since returned to pre-construction values. Culverts and run-off from road now feed away from the wetland (underneath the BORR).	Habitat altered due to alignment (presence of culverts / run-off drains), however the presence of water throughout this UFI-wetland varied seasonally prior to construction. Previous habitat was a very small, reduced wetland on farmland, limited conservation value. Wetland listed as REW, however prior vegetative clearing likely due to farming practices likely impacted site prior to minimal construction activities.	Uncertain - minor temporary impacts were observed for UFI 1117 and may be due to the wetland's historically degraded state from agricultural activities, rather than project-induced degradation.
UFI-14478	No change in water chemistry, some temporal fluctuations.	Construction has not influenced observable wetland habitat.	No
UFI-15493	No change in water chemistry, some temporal fluctuations.	Construction has not influenced observable wetland habitat.	No



5.3 Recommendations

Following the 2025 monitoring of BSM populations and UFI-wetland sites within the BORR Southern project area, the below further monitoring or assessment are recommended:

- Given its pre-existing disturbance levels, it is uncertain whether construction activities, ground disturbance and the installation of box-culverts, have contributed to an absence of BSM at BSM-S-PI-2 since 2023. Monitoring of BSM populations should continue at the current BSM monitoring sites to better determine there has been a Project attributable decline.
- If future monitoring doesn't detect the presence of BSM at the BSM-S-PI-2 monitoring site, consideration should be given to including further reference sites to improve understanding about the local population, given the absence of BSM at reference site BSM-S-R-1.
- If future monitoring doesn't detect the presence of BSM at the BSM-S-PI-2 monitoring site, consider testing for directional movement of BSM through the culverts when the wetland is inundated in future monitoring programs.
- If future monitoring doesn't detect the presence of BSM at the BSM-S-PI-2 monitoring site, consider investigating the source-sink relationships between the receded pool at BSM-S-PI-2, and minnow presence during annual BSM surveys.



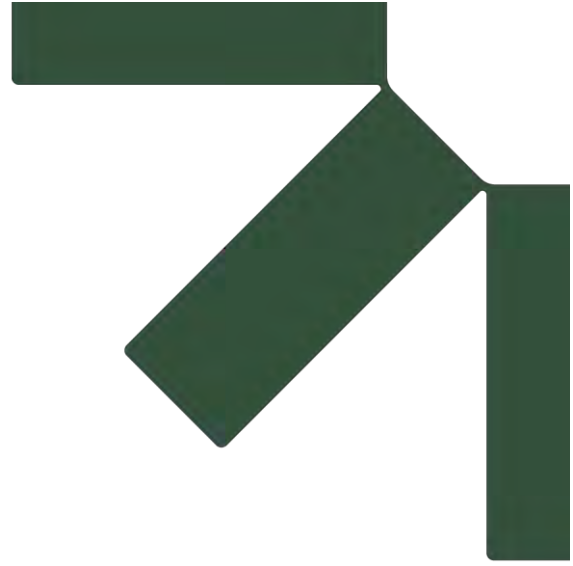
6.0 References

- Allen GR, Midgley SH, Allen M (2002) Field Guide to the Freshwater Fishes of Australia. Western Australian Museum, Perth WA.
- ANZECC/ARMCANZ (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australia and New Zealand Environment and Conservation Council and the Agriculture and Resource Management Council of Australia and New Zealand. Paper No. 4. Canberra. <http://www.deh.gov.au/water/quality/nwqms/index.html>
- ANZG (2018) Guidelines for Water Quality Management. <http://www.waterquality.gov.au/guidelines>.
- Australian Society of Fish Biology (2016) Conservation Status of Australian Fishes. <http://www.asfb.org.au/committees/threatened-species-committee/>
- Cheal F, Davis J, Growns J, Bradley J, Whittles F (1993) The influence of sampling method on the classification of wetland macroinvertebrate communities. *Hydrobiologia* 257: 47-56.
- Davis JA, Rosich RS, Bradley JS, Growns JE, Schmidt LG, Cheal F (1993) Wetlands of the Swan Coastal Plain Volume 6: Wetland Classification on the Basis of Water Quality and Invertebrate Community Data. Murdoch University and the Water Authority of Western Australia.
- Department of Biodiversity, Conservation and Attractions (2021). Threatened and Priority Fauna List. December 2021.
- Department of Environment Sport and Territories, Land and Water Resources – Research and Development Corporation, Commonwealth Environment Protection Authority (1994) National River Processes and Management Program: Monitoring River Health Initiative. River Bioassessment Manual, Version 1.0. February 1994.
- Edward DHD, Gazey P, Davies PM (1994) Invertebrate community structure related to physico-chemical parameters of permanent lakes of the south coast of Western Australia. *Journal of the Royal Society of Western Australia* 77: 51-63.
- Galeotti DM, McCulloch CD, Lund MA (2008) Current state of knowledge of the black-stripe minnow *Galaxiella nigrostriata* (Pisces: Galaxiidae) in Western Australia. Centre for Ecosystem Management report 2008-12.
- Galeotti DM (2013) Metapopulation theory explains black-stripe minnow (Pisces: Galaxiidae, *Galaxiella nigrostriata*) distribution in seasonal wetlands in south-western Western Australia. Retrieved from <https://ro.ecu.edu.au/theses/708>
- Knott B, Jasinka J, Smith K (2002). Limnology and aquatic fauna of EPP173, Melaleuca Park, refuge for an outlier population of the Black-stripe minnow *Galaxiella nigrostriata* (Galaxiidae), in southwestern Australia. *Records of the Western Australian Museum* 21: 291-298.
- Main Roads (2025) Bunbury Outer Ring Road; Post-construction Aquatic Faun Monitoring EOS 706 and 2107. D25#605820. Official Environmental Brief – Aquatic Fauna Monitoring.
- Morgan DL, Gill HS, Potter IC (1998) Distribution, identification and biology of freshwater fishes in south-western Australia. *Records of the Western Australian Museum*. Supplement No. 56. Western Australian Museum, Perth.
- Morgan DL, Gill HS (2000) Fish associations within the different inland habitats of lower south-western Australia. *Records of the Western Australian Museum* 20: 31-37.



- Morgan DL, Beatty SJ, Klunzinger MW, Allen MG, Burnham QF (2011) A field guide to freshwater fishes, crayfishes and mussels of southwestern Australia. SERCUL and Freshwater Fish Group, Perth WA.
- Ogston G, Beatty S, Morgan D, Pusey B, Lymbery A (2016) Living on burrowed time: Aestivating fishes in south-western Australia face extinction due to climate change. *Biological Conservation* **195**: 235-244.
- Smith KD, Knott B, Jasinska EJ (2002) Biology of the Black-stripe minnow *Galaxiella nigrostriata* (Galaxiidae) in an acidic, black-water lake in Melaleuca Park, near Perth, Western Australia. *Records of the Western Australian Museum* **21**: 277-284.
- Storey AW, Halse SA, Shiel RJ (1993) Aquatic invertebrate fauna of the Two Peoples Bay area, southwestern Australia. *Journal of the Royal Society of Western Australia* 76: 25-32.
- Tsvetnenko Y 1998. Derivation of Australian tropical marine water quality criteria for protection of aquatic life from adverse effects of petroleum hydrocarbons. *Environmental Toxicology and Water Quality* 13, 273-284.
- USEPA 1994d. *Whole effluent toxicity (WET) control policy*. US Environmental Protection Agency Office of Water, Washington DC. EPA/833-B-94-002.
- WRM (2019a) Bunbury Outer Ring Road: Targeted Conservation Significant Aquatic Fauna Survey 2018. Unpublished final v2 report by Wetland Research & Management to BORR Team Pty Ltd. January 2019.





Appendix A Water Quality Monitoring

Table A1. Historic (2020 – 2025) In-situ water quality results from BSM southern sites sampled, with ANZG (2018) default guidelines values (DGVs) for species protection in slightly disturbed ecosystems relevant to the South-West region. (values in exceedance of guideline values are highlighted in grey).

Site	Date	Temp (°C)	Cond (µs/cm)	pH (H+)	Redox (mV)	Turbidity (NTU)	DO %	DO (mg/L)
ANZG (2018) DGVs for wetlands in SW Australia			300-1500	7-8.5		10-100	90 - 120	
BSM-S-R-1	29-05-2020	Not sampled						
	07-08-2020	13.1	820	7.15	-19.8	4.9	72.1	7.88
	28-10-2020	18.8	1056	6.71	18.8	4.86	31	2.2
	28-01-2021	16.4	2610	7.26	8.5	10.64	31.4	9.91
	25-05-2021	11	2810	5.58	7.96	2.76	48.7	5.56
	27-08-2021	8.2	619.6	7.82	-40.2	2.13	48.4	5.68
	13-10-2021	11.5	742.7	6.89	10.1	3.25	55.5	5.97
	31-01-2022	21.1	1360	6.75	27.5	8.96	5	0.51
	01-06-2022	8.5	1947	5.02	118.1	6.8	54.4	6.12
	15-08-2022	12.6	613.5	6.45	25.4	11.59	30.2	3.27
	06-10-2022	14.2	676	7.03	6.3	3.71	61.7	6.17
	31-01-2023	21.7	1519	7.22	-6.8	26.78	26.2	2.83
	15-05-2023	DRY						
	18-09-2023	17.1	1352	6.82	3.2	8.18	61.9	5.12
	21-11-2023	19.3	1880	7.75	-44.3	8.43	37.1	3.34
	29-01-2024	23.2	3300	6.27	22.2	16.32	56.5	3.72
	13-05-2024	DRY						
	01-10-2024	19	621.7	6.59	28.1	28.04	39.4	3.51
	19-11-2024	22.7	1272	6.91	1	9.29	44.3	3.13
	04-02-2025	25.7	1650	6.01	5.9	33.79	41.4	3.43
	05-05-2025	DRY						
	01-09-2025	13.4	478	6.5	-9.9	11.2	7	0.48
	02-12-2025	22.2	1137	6.83	110.5	6.52	34.6	3.21
BSM-S-PI-1	29-05-2020	DRY						
	07-08-2020	14.1	837	7.24	-24.9	1.52	72.2	7.55
	28-10-2020	DRY						
	28-01-2021	DRY						
	25-05-2021	DRY						
	27-08-2021	10.2	520.9	7.36	-14.7	6.61	63.5	7.09
	14-10-2021	13.9	778.9	7.12	-1.5	5.95	83	8.34
	31-01-2022	DRY						
	01-06-2022	DRY						
	15-08-2022	14.4	492.9	6.79	14	5.34	54.8	4.4
	05-10-2022	19.7	596.3	7.3	-1.6	3.98	55	5



Site	Date	Temp (°C)	Cond (µs/cm)	pH (H+)	Redox (mV)	Turbidity (NTU)	DO %	DO (mg/L)
ANZG (2018) DGVs for wetlands in SW Australia			300-1500	7-8.5		10-100	90 - 120	
	31-01-2023	DRY						
	15-05-2023	DRY						
	18-09-2023	DRY						
	21-11-2023	DRY						
	29-01-2024	DRY						
	13-05-2024	DRY						
	01-10-2024	16.5	682.3	7.29	-13.4	41.9	29.4	2.3
	19-11-2024	DRY						
	04-02-2025	DRY						
	06-05-2025	DRY						
	03-09-2025	16.1	426	6.72	81	7.08	36.1	3.54
	02-12-2025	DRY						
BSM-S-PI-2	29-05-2020	DRY						
	08-08-2020	11	846	7.41	-34.8	3.55	76.9	8.47
	28-10-2020	20.5	1125	6.96	5.3	26.57	34.4	3.35
	28-01-2021	DRY						
	25-05-2021	DRY						
	27-08-2021	10.1	528.1	7.74	-36	6.78	55	6.78
	14-10-2021	16.6	716.1	7.31	-13.5	4.87	83.5	8.43
	31-01-2022	DRY						
	01-06-2022	DRY						
	15-08-2022	15.7	505.6	6.8	13	5.89	53.4	5.24
	05-10-2022	21.5	607	7.11	0.4	3.81	63	5.65
	31-01-2023	25.7	1087	8.04	-55.2	12.71	114.3	8.94
	15-05-2023	16.6	1600	7.33	-24.6	6.42	21.8	1.73
	21-09-2023	19	1090	7.41	-28.8	2.78	61.3	5.67
	20-11-2023	32.6	1379	7.92	-55.9	12.9	109.2	6.13
	29-01-2024	33.5	4270	7.65	-47.9	160.1	31.2	6.2
	13-05-2024	DRY						
	30-09-2024	24.1	539.9	6.82	13.3	13.46	48.9	2.93
	18-11-2024	29	882	8.05	-67.3	31.13	158.5	9.19
	04-02-2025	32.6	1271	8.3	-81.1	17.96	134.4	9.78
	05-05-2025	21.9	1558	9.2	-129.6	127.6	181.1	17.65
	01-09-2025	17.2	411	6.73	73.9	6.2	38.8	3.73
	01-12-2025	27.6	829	7.67	134.6	12.1	106.1	8.75
BSM-S-PI-3	17-08-2022	14.1	524.4	7.17	-10.7	6.61	40.3	4.17
	15-09-2022	18.5	508	6.63	20.9	4.6	25.5	2.39
	12-10-2022	12.7	760.9	7.3	7.6	5.69	20.8	2.22



Site	Date	Temp (°C)	Cond (µs/cm)	pH (H+)	Redox (mV)	Turbidity (NTU)	DO %	DO (mg/L)
ANZG (2018) DGVs for wetlands in SW Australia			300-1500	7-8.5		10-100	90 - 120	
	31-01-2023	DRY						
	15-05-2023	DRY						
	18-09-2023	15.2	765.2	6.14	36.6	11.97	14.3	1.49
	20-11-2023	DRY						
	29-01-2024	DRY						
	13-05-2024	DRY						
	02-10-2024	16.4	626.5	6.75	16.2	10.05	19.1	1.93
	18-11-2024	21.1	875	7.39	-31.4	20.69	3.6	0.4
	04-02-2025	DRY						
	05-05-2025	DRY						
	03-09-2025	13.9	430	6.61	84.9	6.43	16.2	1.65
	02-12-2025	18.8	920	6.84	-80.1	3.54	18.7	1.72

Table A2. Historic (2020 – 2025) laboratory water quality results from BSM southern sites sampled, with ANZG (2018) default guidelines values (DGVs) for species protection in slightly disturbed ecosystems relevant to the South-West region. (values in exceedance of guideline values are highlighted in grey).

Location ID	Date	Colour (TCU)	TSS (mg/L)	TN	TP	F1 (µg/L)	F2 (µg/L)	F3 (µg/L)	F4 (µg/L)	Total TRH (µg/L)
ANZG (2018) DGVs for wetlands in SW Australia				1.5	0.06					
BSM-S-R-1	29-05-2020	Not sampled								
	07-08-2020	700	17			<25	<25	<100	<100	<250
	28-10-2020	790	130			<25	110	650	100	860
	28-01-2021	520	9			<25	48	340	<100	<250
	25-05-2021	200	1			<25	<25	140	<100	<250
	27-08-2021	670	3			<25	<25	<100	<100	<250
	13-10-2021	560	6			<25	400	130	<100	530
	31-01-2022	740	18			<25	<25	180	<100	<250
	01-06-2022	390	16			<25	<25	180	<100	<250
	15-08-2022	750	5			<25	<25	<100	<100	<250
	11-11-2022	640	N/A			<25	<25	<100	<100	<250
	31-01-2023	790	61			<25	<25	260	<100	260
	15-05-2023	DRY								
	18-09-2023	470	3	3.3	0.45	<25	46	120	<100	<250
	21-11-2023	480	5	4.9	0.53	<25	<25	170	<100	<250
	29-01-2024	750	53	12	1.3	<25	46	820	<100	860
	13-05-2024	DRY								



Location ID	Date	Colour (TCU)	TSS (mg/L)	TN	TP	F1 (µg/L)	F2 (µg/L)	F3 (µg/L)	F4 (µg/L)	Total TRH (µg/L)
ANZG (2018) DGVs for wetlands in SW Australia				1.5	0.06					
	01-10-2024	760	200	9.3	1.3	<25	32	270	<100	300
	19-11-2024	530	3	4.5	0.36	<25	34	250	<100	280
	04-02-2025	470	24	6.1	0.66	<25	<25	450	<100	450
	05-05-2025	DRY								
	01-09-2025	830	390	4.2	0.66	<25	220	140	<100	350
	02-12-2025	410	6	3.8	0.39	<25	50	110	<100	<250
BSM-S-PI-1	29-05-2020	DRY								
	07-08-2020	640	1			<25	<25	<100	<100	<250
	28-10-2020	DRY								
	28-01-2021	DRY								
	25-05-2021	DRY								
	27-08-2021	650	4			<25	<25	<100	<100	<250
	14-10-2021	560	4			<25	<25	130	<100	<250
	31-01-2022	DRY								
	01-06-2022	DRY								
	15-08-2022	720	1			<25	<25	<100	<100	<250
	09-11-2022	990	N/A			<25	<25	200	<100	<250
	31-01-2023	DRY								
	15-05-2023	DRY								
	18-09-2023	DRY								
	21-11-2023	DRY								
	29-01-2024	DRY								
	13-05-2024	DRY								
	01-10-2024	710	23	5.1	1.2	<25	<25	190	<100	<250
	19-11-2024	DRY								
	04-02-2025	DRY								
	06-05-2025	DRY								
	03-09-2025	760	6	4.2	0.79	<25	<25	<100	<100	<250
	02-12-2025	DRY								
BSM-S-PI-2	29-05-2020	DRY								
	08-08-2020	640	1			<25	<25	<100	<100	<250
	28-10-2020	800	22			<25	<25	140	<100	<250
	28-01-2021	DRY								
	25-05-2021	DRY								
	27-08-2021	650	7							
	14-10-2021	590	3			<25	48	120	<100	<250
	31-01-2022	DRY								
	01-06-2022	DRY								



Location ID	Date	Colour (TCU)	TSS (mg/L)	TN	TP	F1 (µg/L)	F2 (µg/L)	F3 (µg/L)	F4 (µg/L)	Total TRH (µg/L)
ANZG (2018) DGVs for wetlands in SW Australia				1.5	0.06					
	15-08-2022	720	3			<25	<25	<100	<100	<250
	09-11-2022	870	N/A			<25	<25	240	<100	<250
	31-01-2023	380	18			<25	<25	310	<100	310
	15-05-2023	180	15			<25	26	340	<100	360
	21-09-2023	450	2	3.2	0.57	<25	58	140	<100	<250
	20-11-2023	310	15	4.1	0.88	<25	<25	220	<100	<250
	29-01-2024	250	190	23	3.1	<25	200	2100	370	2700
	13-05-2024	DRY								
	30-09-2024	750	7	4.7	0.87	<25	<25	160	<100	<250
	18-11-2024	580	54	7.8	1.9	<25	37	380	<100	420
	04-02-2025	290	13	4.8	0.4	<25	27	310	<100	330
	05-05-2025	180	220	28	2.7	<25	210	4900	280	5400
	01-09-2025	750	6	4	0.76	<25	<25	<100	<100	<250
	01-12-2025	600	24	4.6	0.81	<25	<25	300	<100	300
BSM-S-PI-3	17-08-2022	710	4			<25	<25	<100	<100	<250
	15-09-2022	660	46			<25	<25	<100	<100	<250
	12-10-2022	760	5			<25	140	<100	<100	<250
	31-01-2023	DRY								
	15-05-2023	DRY								
	18-09-2023	670	27	2.5	0.2	<25	110	150	<100	260
	20-11-2023	DRY								
	29-01-2024	DRY								
	13-05-2024	DRY								
	02-10-2024	810	12	5.2	1.1	<25	<25	200	<100	<250
	18-11-2024	690	49	4.3	0.58	<25	55	250	<100	310
	03-09-2025	770	5	4.2	0.81	<25	100	110	<100	<250
	02-12-2025	730	2	2.9	0.38	<25	26	130	<100	<250

Table A3. Historic (2022 – 2025) laboratory water quality results from BSM southern sites sampled after gel silica clean up(values in exceedance of guideline values are highlighted in grey).

TRH (after silica gel clean-up)				
Location ID	Date	F2: >C10-C16 (µg/L)	F3: >C16-C34 (µg/L)	F4: >C34-C40 (µg/L)
BSM-S-R-1	31-01-2022	<25	<100	<100
	01-06-2022	<25	<100	<100
	31-01-2023	<25	<100	<100
	18-09-2023	<25	<100	<100



TRH (after silica gel clean-up)				
Location ID	Date	F2: >C10-C16 (µg/L)	F3: >C16-C34 (µg/L)	F4: >C34-C40 (µg/L)
	21-11-2023	<25	<100	<100
	29-01-2024	31	460	<100
	01-10-2024	25	110	<100
	19-11-2024	<25	<100	<100
	21-09-2024	<25	<100	<100
	04-02-2025	<25	210	<100
	01-09-2025	72	<100	<100
	02-12-2025	<25	<100	<100
BSM-S-PI-1	09-11-2022	<25	<100	<100
	01-10-2024	<25	<100	<100
BSM-S-PI-2	09-11-2022	<25	<100	<100
	31-01-2023	<25	<100	<100
	15-05-2023	<25	<100	<100
	21-09-2023	<25	<100	<100
	20-11-2023	<25	<100	<100
	29-01-2024	130	1100	400
	30-09-2024	<25	<100	<100
	18-11-2024	<25	150	<100
	04-02-2025	<25	<100	<100
	05-05-2025	110	3600	260
	01-12-2025	<25	130	<100
BSM-S-PI-3	12-10-2022	37	<100	<100
	18-09-2023	93	<100	<100
	02-10-2024	<25	<100	<100
	18-11-2024	32	<100	<100
	03-09-2025	27	<100	<100
	02-12-2025	<25	<100	<100

Table A4. Historic (2022 – 2025) In-situ water quality results from UFI-wetland southern sites sampled, with ANZG (2018) default guidelines values (DGVs) for species protection in slightly disturbed ecosystems relevant to the South-West region. (values in exceedance of guideline values are highlighted in grey).

Site	Date	Temp (°C)	Cond (µs/cm)	pH (H+)	Redox (mV)	Turbidity (NTU)	DO %	DO (mg/L)
ANZG (2018) DGVs for wetlands in SW Australia			300-1500	7-8.5		10-100	90 - 120	
UFI-1117	17-08-2022	7.6	458	5.42	8.7	5.29	41	5.35
	15-09-2022	24	744.5	4.77	139.4	1.9	27.4	2.27
	11-10-2022	22.1	1175	5.77	79.8	6.68	27	2.32



	22-09-2023	19	676.3	6.64	14.5	43.85	15.5	1.66
	21-11-2023	22.4	1375	8.09	-66.8	41.03	22.7	1.97
	02-10-2024	22.4	518.4	7.61	-28.3	31.84	82	7.18
	19-11-2024	29	440.4	6.41	30	47.74	95.1	5.98
	04-09-2025	12.2	785.0	6.26	35.4	1.74	13.5	1.42
	01-12-2025	25.5	487	6.68	94.4	6.47	30.9	2.54
UFI-14478	17-08-2022	14.9	2904	6.3	40.4	1.91	24.8	1.53
	15-09-2022	19.2	1521	6.81	10.4	3.8	25.5	2.18
	11-10-2022	15.9	1700	6.96	9.8	1.01	27.4	1.01
	20-09-2023	16.2	742	6.96	-8.1	3.38	5.3	0.47
	01-10-2024	20.2	442.3	6.91	7.9	19.71	9.6	0.97
	18-11-2024	21.5	755.5	7.4	-23.6	6.96	33.6	2.05
	04-09-2025	13.6	792.0	7.00	-17.7	1.02	2.2	0.19
	01-12-2025	21.0	112	7.23	106.4	4.90	28.5	2.58
UFI-15493	16-08-2022	16.3	483	6.71	17.6	0.55	17	1.75
	16-09-2022	14.5	619.5	7.33	-17.1	2.99	9.6	0.82
	10-10-2022	20.7	792.8	7.57	-26.9	1.75	42.6	3.87
	20-09-2023	17	568.8	7.44	-32.4	1.86	36.1	3.43
	01-10-2024	23.5	765	7.45	-23.7	13.8	48	3.86
	04-09-2025	12.9	542.0	7.26	68.7	0.65	7.5	0.78

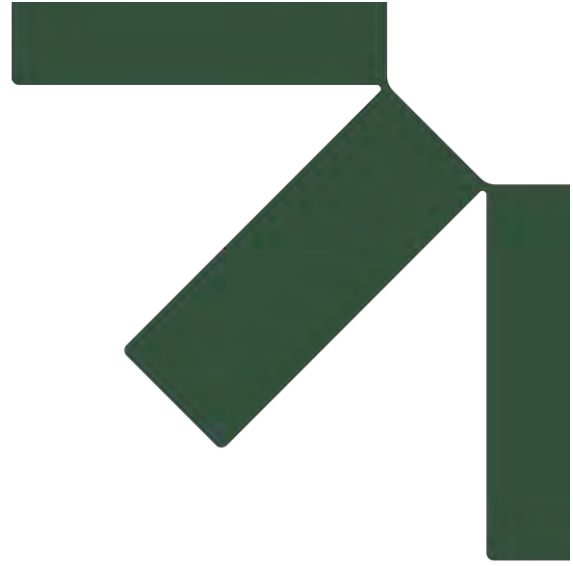
Table A5. Historic (2022 – 2025) laboratory water quality results from UFI wetland sites sampled, with ANZG (2018) default guidelines values (DGVs) for species protection in slightly disturbed ecosystems relevant to the South-West region. (values in exceedance of guideline values are highlighted in grey).

Location ID	Date	Colour (TCU)	TSS (mg/L)	TN	TP	TRH				
						F1 (µg/L)	F2 (µg/L)	F3 (µg/L)	F4 (µg/L)	Total TRH (µg/L)
				1.5	0.06	>25	>25	>100	>100	>250
UFI-1117	18-08-2022	1700	3			<25	<25	110	<100	<250
	15-09-2022	2800	4			<25	<25	190	<100	<250
	11-10-2022	5300	16			<25	62	340	<100	400
	22-09-2023	2200	10	4.1	0.11	<25	<25	160	<100	<250
	21-11-2023		14	2.6	0.045	<25	<25	<100	<100	<250
	02-10-2024	430	52	3.4	0.25	<25	63	370	<100	430
	19-11-2024		59	2.8	0.17	<25	89	320	<100	410
	04-09-2025	1900	4.9	0.11	6	<25	<25	130	<100	<250
	01-12-2025	1200	2.9	0.13	33	<25	63	160	<100	<250
UFI-14478	17-08-2022	340	4			<25	<25	<100	<100	<250
	15-09-2022	710	1			<25	<25	<100	<100	<250
	12-10-2022	810	2			<25	63	110	<100	<250
	20-09-2023		8	6.1	0.029	<25	59	<100	<100	<250
	01-10-2024	650	16	4.5	0.41	<25	26	220	<100	<250



	18-11-2024		4	3.7	0.22	<25	53	250	<100	300
	04-09-2025	480	2.5	0.11	140	<25	<25	200	<100	<250
	01-12-2025	710	2.6	0.084	2	<25	<25	140	<100	<250
UFI-15493	16-08-2022	160	6			<25	<25	<100	<100	<250
	16-09-2022	220	3			<25	50	<100	<100	<250
	12-10-2022	120	2			<25	<25	<100	<100	<250
	20-09-2023		0.5	0.7	0.069	<25	<25	<100	<100	<250
	01-10-2024	120	6	1	0.077	<25	57	330	<100	390
	04-09-2025	180	1.1	0.094	7	<25	240	150	<100	390





Appendix B Photopoints

BSM-S-R-1

September 2025 (Q3)



December 2025 (Q4)



BSM-S-PI-1

September 2025 (Q3)



December 2025 (Q4)



BSM-S-PI-2

September 2025 (Q3)



December 2025 (Q4)



BSM-S-PI-3

September 2025 (Q3)



December 2025 (Q4)



UFI-1117

September 2025 (Q3)



December 2025 (Q4)



UFI-14478

September 2025 (Q3)



December 2025 (Q4)



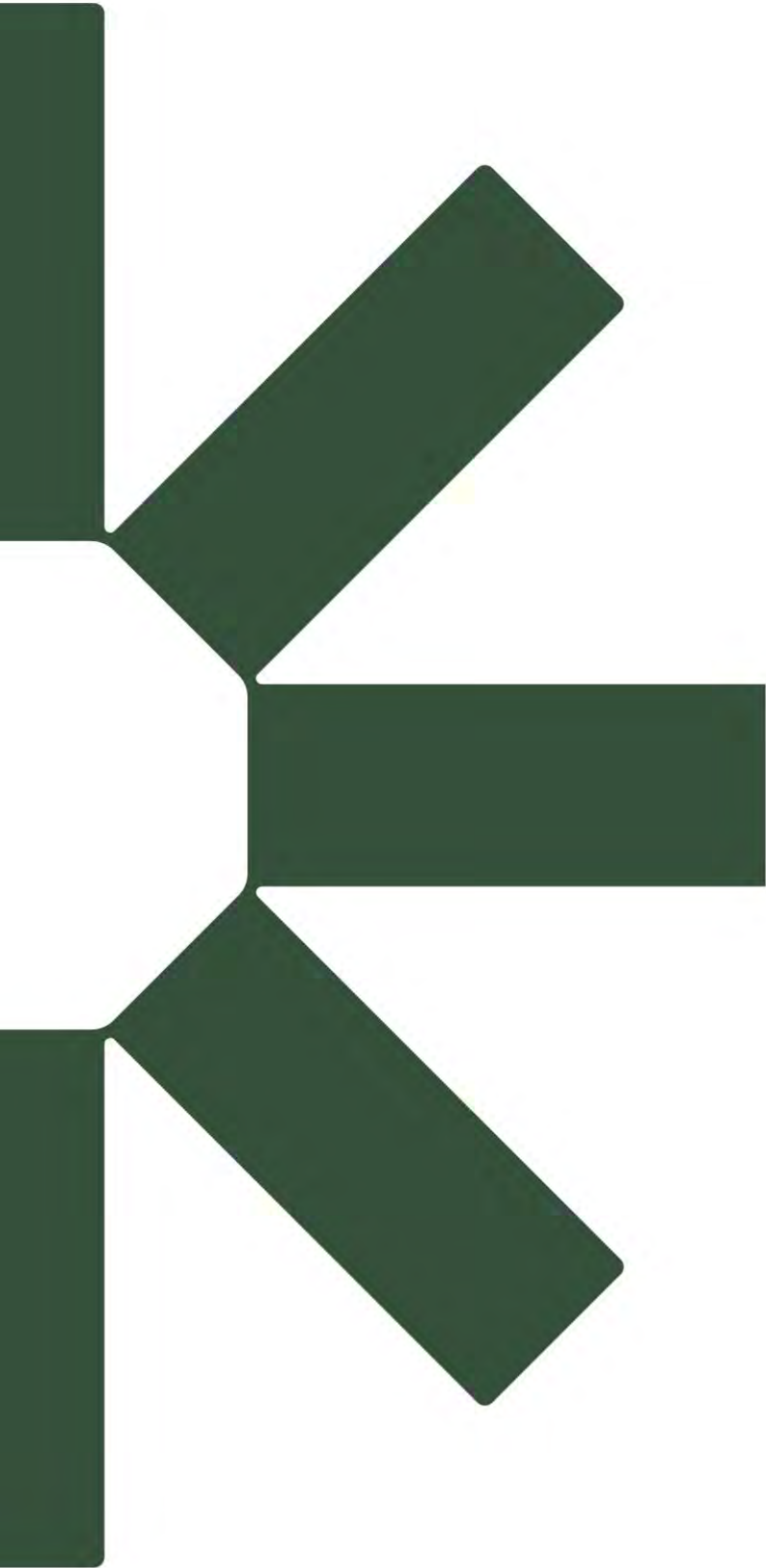
UFI-15493

September 2025 (Q3)



December 2025 (Q4)





APPENDIX J: M3.4 Environmental Performance Report – Flora and Vegetation (PEC)

Environmental Performance Report – Flora and Vegetation Priority Ecological Communities

**Bunbury Outer Ring Road –
Southern Approval
Ministerial Statement 1191**

*Keeping
WA Moving*

2025-2026 Reporting Period

Document Control

Report Compilation & Review	Position	Document Revision	Date
Author:	Environment Officer	Draft A	27 July 2026
Reviewer:	Principal Environment Officer - CRSP	Draft B	17 Aug 2026
Approver:	Principal Environment Officer	Rev 0	19 Aug 2026

Executive Summary

This Environmental Performance Report (EPR) details the environmental performance and compliance of the Bunbury Outer Ring Road (BORR) Southern Section project under Ministerial Statement 1191 (MS 1191) for the 12-month period from 31 May 2025 to 31 May 2026. Over the reporting period, Main Roads Western Australia (Main Roads) was fully compliant with all environmental outcomes mandated by MS 1191 Condition 3.

The key performance outcomes for the reporting period were:

- During the 2025–2026 reporting period, no ground disturbance or clearing of Priority Ecological Communities occurred. Cumulative clearing for the project remains below all allowable limits set under Condition 3-1(1):
 - Banksia Woodlands PEC: 17.70 ha cleared out of the 23.4 ha permitted (5.70 ha under clearing limit).
 - Tuart Woodlands PEC: 3.48 ha cleared out of the 4.4 ha permitted (0.92 ha under clearing limit).
 - Tuart-Peppermint Woodlands PEC: 3.58 ha cleared out of the 4.5 ha permitted (0.92 ha under clearing limit).
- Comprehensive monitoring across nine potential impact sites (108 photopoints, transects, quadrats) and five reference sites confirmed no project-attributable indirect impacts within 20 metres of the development envelope or within clearing exclusion areas.
- Vegetation structure and dominant species composition remained stable across all monitoring points. Retained vegetation showed signs of canopy stabilisation and epicormic recovery following historical regional drought stress.
- Quarterly visual drainage monitoring confirmed no abnormal inundation (>24 hours), non-seasonal drying or new erosion. No new *Phytophthora cinnamomi* (dieback) fronts or expansions were detected.

Contents

Executive Summary	3
1 INTRODUCTION	5
1.1 Background.....	5
1.2 Purpose and Scope.....	6
2 Environmental Performance Report	7
2.1 Priority Ecological Communities.....	7
2.2 Clearing metrics in relation to Flora and Vegetation (PEC).....	7
2.3 Monitoring Program Undertaken - Condition 3-4(1).....	8
2.4 Monitoring Results and Assessment of Outcomes - Condition 3-4(2).....	8
3 Figures	10
Figure 1. Proposal area (Proposal area as shown in Ministerial Statement 1191).....	11
Figure 2. Distribution of Banksia Woodlands TEC/PEC, Tuart Woodlands TEC/PEC and Tuart-Peppermint Woodlands PEC in proximity to the Proposal area.....	12
Figure 3. Distribution of Banksia Woodlands TEC/PEC, Tuart Woodlands TEC/PEC adjacent to the Development Envelope.....	13
Figure 4. Overview of monitoring locations for Banksia Woodlands TEC/PEC, Tuart Woodlands TEC/PEC.....	14
Appendix 1: Environmental Performance Report – Priority Ecological Communities (EcoEdge, 2026)	15

1 INTRODUCTION

1.1 Background

The Commissioner of Main Roads Western Australia (Main Roads) has been granted conditional approval for the Bunbury Outer Ring Road (BORR) Southern Section (the Proposal) (Figure 1) under Part IV Division 2 (section 45) of the *Environmental Protection Act 1986* by the Minister for Environment. The Proposal is subject to the implementation conditions of Ministerial Statement 1191 (MS 1191), which was issued on 31 May 2022 (Minister for Environment, 2022).

In its Report and Recommendations for the Proposal (EPA Report 1714, October 2021), the EPA noted that in relation to Flora and Vegetation, the following Priority Ecological Communities (PECs) (Priority 3) were identified in the development envelope (Figure 2):

- Banksia woodlands of the Swan Coastal Plain (referred to as the Banksia Woodlands TEC/PEC)
- Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain (referred to as the Tuart Woodlands TEC/PEC)
- Southern Swan Coastal Plain *Eucalyptus gomphocephala* – *Agonis flexuosa* woodlands (FCT 25) (referred to as the Tuart-Peppermint Woodlands PEC).

Two of these communities are listed as Threatened Ecological Communities (TECs) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and are considered Matters of National Environmental Significance for the Commonwealth assessment. The Banksia Woodlands is listed as Endangered and the Tuart Woodlands is listed as Critically Endangered.

In addition to the proposals direct clearing impacts, indirect impact to these communities may also occur through the introduction/spread of weeds and disease (including dieback *Phytophthora cinnamomi*) and altered hydrological regimes.

To manage these risks, Condition 3 of MS1191 requires the following:

Condition 3-1

The proponent shall implement the proposal to achieve the following environmental outcomes:

- (1) *clear no more than:*
 - (a) 23.4 ha of vegetation representative of the Banksia Woodlands of the Swan Coastal Plain Priority Ecological Community (PEC) (Banksia Woodlands);
 - (b) 4.4 ha of vegetation representative of the Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain PEC (Tuart Woodlands); and
 - (c) 4.5 ha of vegetation representative of the Southern Swan Coastal Plain *Eucalyptus gomphocephala* – *Agonis flexuosa* Woodlands PEC (Tuart-Peppermint Woodlands), overlapping the Tuart Woodlands PEC.
- (2) *ensure there are no project attributable indirect impacts, when compared to preconstruction baseline conditions, to Banksia Woodlands, Tuart Woodlands and Tuart-Peppermint Woodlands within twenty (20) metres outside the development envelope (defined in Figure 2a and Figure 2b) and within the clearing exclusion areas (defined in Figure 1).*

Condition 3-2

Prior to ground-disturbing activities, the proponent shall undertake monitoring of the values listed in condition 3-1(2) and submit a report about the preconstruction baseline conditions to the CEO.

Condition 3-3

The proponent shall continue to undertake monitoring during and postconstruction until the CEO is satisfied that the proponent has demonstrated the outcomes in condition 3-1(2) has been met.

1.2 Purpose and Scope

This Environmental Performance Report (EPR) addresses the compliance of the Proposal with Condition 3-4 set out in MS 1191.

Condition 3-4 of MS 1191 requires an annual EPR to be submitted to the Chief Executive Officer (CEO) of DWER as part of the Compliance Assessment Report (CAR).

MS 1191: Condition 3-4

The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:

- 1) outline the monitoring that was undertaken during the implementation of the proposal;*
- 2) outline the results of the monitoring undertaken to report whether that the environmental outcomes specified in condition 3-1(2) were achieved;*
- 3) report whether that the outcomes in condition 3-1(1) and condition 3-1(2) were achieved; and*
- 4) outline any management actions undertaken during the implementation of the proposal to meet the outcomes in condition 3-1(1) and condition 3-1(2).*

This EPR has been produced in accordance with condition M3-4 and incorporates a 12-month audit period from 31 May 2025 to 31 May 2026. This is the fourth EPR for M3-4 to be submitted under MS 1191.

The report prepared by EcoEdge (2026) is attached (Appendix 1).

2 Environmental Performance Report

2.1 Priority Ecological Communities

The areas of Banksia Woodlands TEC/PEC and Tuart Woodlands TEC/PEC adjacent to the Development Envelope are indicated in Figure 3, noting the Tuart-Peppermint Woodlands PEC largely overlaps the Tuart Woodlands TEC/PEC.

The monitoring locations of Banksia Woodlands TEC/PEC and Tuart Woodlands TEC/PEC adjacent to the development are indicated in Figure 4.

2.2 Clearing metrics in relation to Flora and Vegetation (PEC)

Construction of the Proposal commenced on 1 August 2022.

No clearing or disturbance of Priority Ecological Community (PEC) occurred during the 2025 – 2026 reporting period.

The clearing and disturbance of PEC during previous reporting periods is summarised in Table 1, noting no clearing of PECs was undertaken during the 2025-2026 reporting period.

Table 1. Ground disturbance and clearing in relation to Priority Ecological Communities.

Environmental Aspect	Area / Quantity specified in Ministerial Statement 1191	Area / Quantity cleared during the 2022 -2023 reporting period	Area / Quantity cleared during the 2023 -2024 reporting period	Area / Quantity cleared during the 2024 -2025 reporting period	Total Area / Quantity cleared
Vegetation representative of the Banksia Woodlands of the Swan Coastal Plain Priority Ecological Community (PEC) (Banksia Woodlands)	23.4 ha	11.49 ha	6.16 ha	0.05 ha	17.70 ha
Vegetation representative of the Tuart (<i>Eucalyptus gomphocephala</i>) Woodlands and forests of the Swan Coastal Plain PEC (Tuart Woodlands)	4.4 ha	2.06 ha	1.42 ha	0 ha	3.48 ha
Vegetation representative of the Southern Swan Coastal Plain <i>Eucalyptus gomphocephala</i> – <i>Agonis flexuosa</i> Woodlands PEC (Tuart-Peppermint Woodlands), overlapping the Tuart Woodlands PEC	4.5 ha	2.15 ha	1.42 ha	0 ha	3.58 ha

2.3 Monitoring Program Undertaken - Condition 3-4(1)

During the 2025–2026 reporting period (31 May 2025 to 31 May 2026), monitoring was conducted by Ecoedge across nine (9) potential impact sites and five (5) reference sites within the Southern Project Area. The program comprised two primary components:

- Vegetation Monitoring was undertaken using photo points, transects and quadrats:
 - Boundary Photo points: Biannual photo point assessments conducted in Spring (September–October 2025) and Autumn (25–26 May 2026) across 88 potential impact boundary photo points and 22 transect photo point locations. Assessments evaluated vegetation structure, vegetation condition, species cover and tree/shrub stress ratings.
 - Transects and Quadrats: Annual Spring (14 October to 5 December 2025) monitoring of 30 m transects with 2 × 2 m quadrats across Banksia Woodlands, Tuart Woodlands and Claypan communities. Claypan sites were surveyed bi-annually in Spring to capture annual flora germination.
- Drainage Monitoring was undertaken through quarterly visual field inspections undertaken in Winter (August 2025), Spring (September 2025), Summer (February 2026) and Autumn (May 2026) across all monitoring sites to inspect for potential project attributable indirect impacts involving inundation/flooding, erosion or non-seasonal drying effects.

2.4 Monitoring Results and Assessment of Outcomes - Condition 3-4(2)

Monitoring results from the 2025 - 2026 reporting period were compared against baseline levels established between October 2019 and July 2022. The assessment confirmed the following:

- Vegetation Structure & Condition - no significant changes in dominant species composition or overall vegetation structure were observed across any of the 108 photo point locations compared to baseline. Out of 125 total monitoring points, only one site experienced a condition downgrade in 2026 (BW-S-PI-5_P28 downgraded from Excellent to Very Good due to localised colonisation by invasive weeds *Oxalis pes-caprae* and *Freesia alba* × *leichtlinii*). This change occurred ~30 m from the alignment where no works took place and was determined to be non-project attributable.
- Weed and Native Cover - observed increases in weed diversity or cover across certain potential impact sites were mirrored in reference sites and attributed to broader regional factors (such as favourable wet-season rainfall) and local seed banks rather than project construction activities. No negative changes in native species cover or overall native diversity were recorded relative to baseline conditions.
- Plant Stress & Plant Deaths - while localised stress and historical mortality (*Hibbertia hypericoides*) persisted at certain sites, these were residual impacts of the severe, record-breaking 2023/2024 drought combined with ongoing Phytophthora dieback or marri canker (*Quambalaria coyrecup*) present prior to construction. Sites showed signs of canopy stabilisation and epicormic recovery following above-average (2024) and average (2025) wet-season rainfall.
- Drainage Effects & Phytophthora - no TEC/PEC vegetation was abnormally inundated or flooded for 24 hours or longer as a result of project activities. No new project-attributable erosion or non-seasonal drying effects were identified. Additionally, no new Phytophthora dieback fronts or expansions were detected.

The environmental outcome specified in Condition 3-1(2) was fully achieved, with no project-attributable indirect impacts to Banksia Woodlands, Tuart Woodlands or Tuart-Peppermint Woodlands within 20 metres outside the development envelope or within clearing exclusion areas being observed during the reporting period.

2.6 Outcomes Achievement (Condition 3-4(3))

Compliance with the environmental outcomes under Condition 3-1(1) and Condition 3-1(2) during the 2025–2026 reporting period is summarised below:

- Condition 3-1(1) Direct Clearing Limits: Achieved.

No direct clearing or ground disturbance of any Priority Ecological Community (Banksia Woodlands, Tuart Woodlands or Tuart-Peppermint Woodlands) occurred during the 2025–2026 reporting period. Cumulative direct clearing for the project remains strictly within the limits permitted under MS 1191 Condition 3-1(1), see Table 1.

- Condition 3-1(2) Indirect Impacts: Achieved.

Environmental monitoring confirmed that no project-attributable indirect impacts (including weed invasion, dieback spread, hydrological changes, erosion or vegetation health decline) has occurred within the 20-metre buffer outside the development envelope or within the designated clearing exclusion areas when compared to preconstruction baseline conditions.

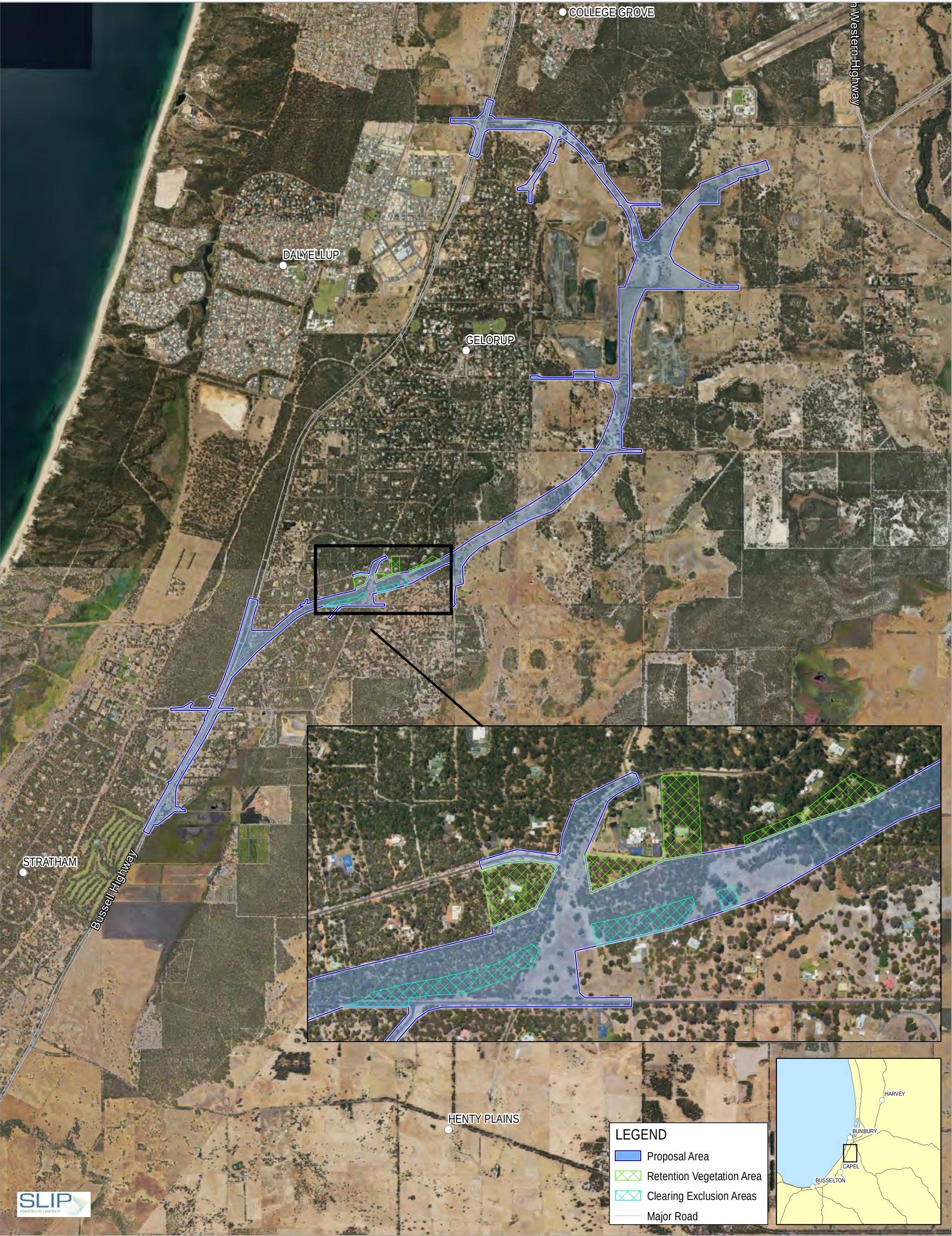
2.7 Management Actions Undertaken - Condition 3-4(4)

Management and mitigation actions implemented during the reporting period to maintain compliance with conditions 3-1(1) and 3-1(2) included:

- Maintenance of physical fencing, signage and strict clearing boundaries adjacent to retained vegetation and designated clearing exclusion areas to prevent unauthorised disturbance or accidental encroaching.
- Implementation of strict hygiene protocols for all machinery, vehicles and personnel entering and exiting the project site to prevent the introduction or spread of *Phytophthora cinnamomi* and aggressive weed species into adjacent TEC/PEC areas.
- Ongoing suppression of weeds and application of mulch along cleared project boundaries adjacent to monitoring sites (e.g., adjacent to BW-S-PI-1_P01 and BW-S-PI-5_P21) to prevent edge degradation and weed encroachment into intact native bushland.
- Execution of ongoing site restoration, layby closure maintenance and revegetation activities adjacent to monitored sites (such as TW-S-PI-3) to support edge recovery and long-term ecosystem stability.

3 Figures

Figure 1. Proposal area (Proposal area as shown in Ministerial Statement 1191)

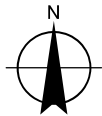


Paper Size ISO A3

0 250 500 750 1,000

Meters

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 Perth Coastal Grid 1994



Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

Proposal Area

FIGURE 1

Figure 2. Distribution of Banksia Woodlands TEC/PEC, Tuart Woodlands TEC/PEC and Tuart-Peppermint Woodlands PEC in proximity to the Proposal area.

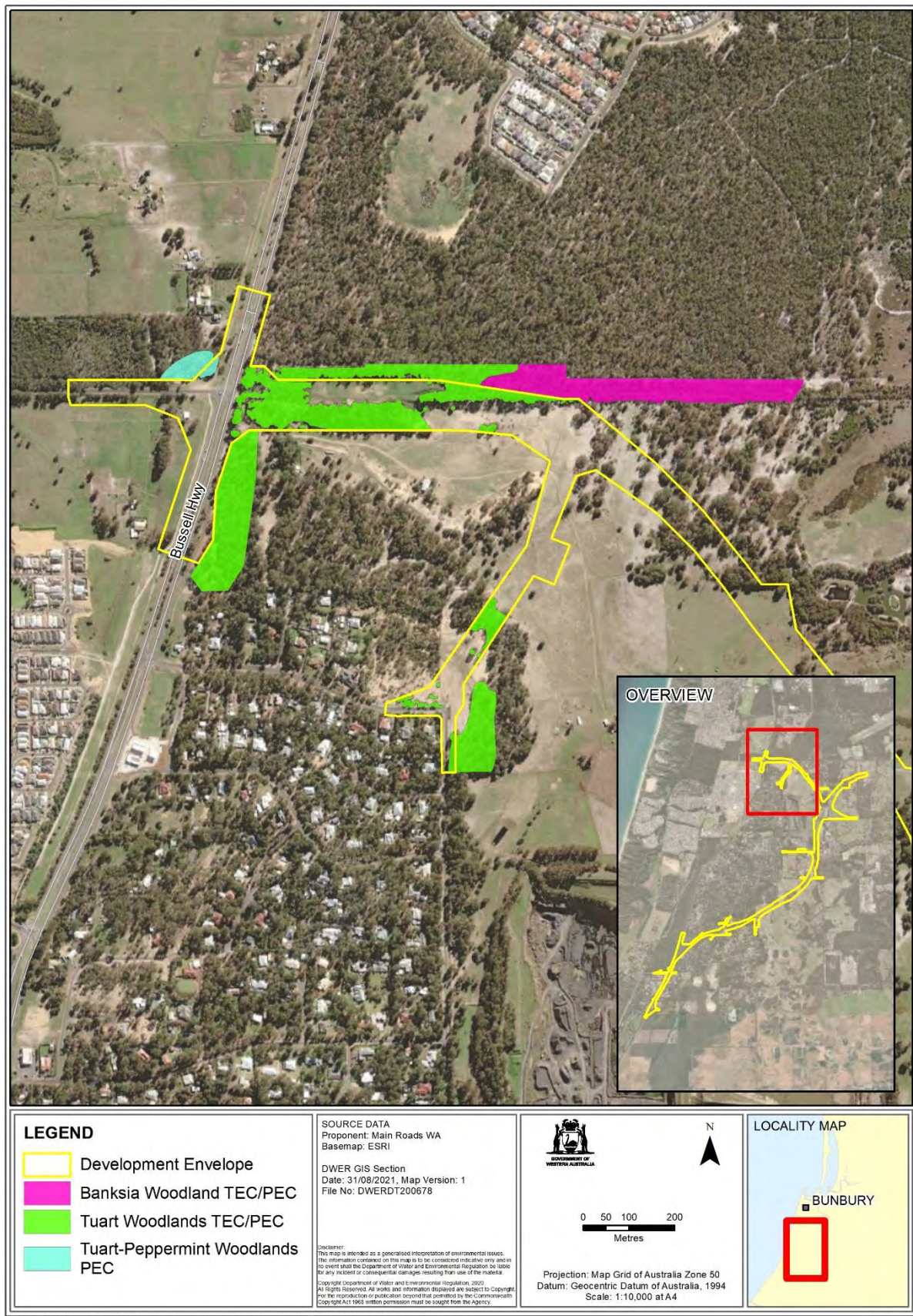


Figure 2a Priority Ecological Communities Banksia Woodlands, Tuart Woodlands and Tuart-Peppermint Woodlands (north)

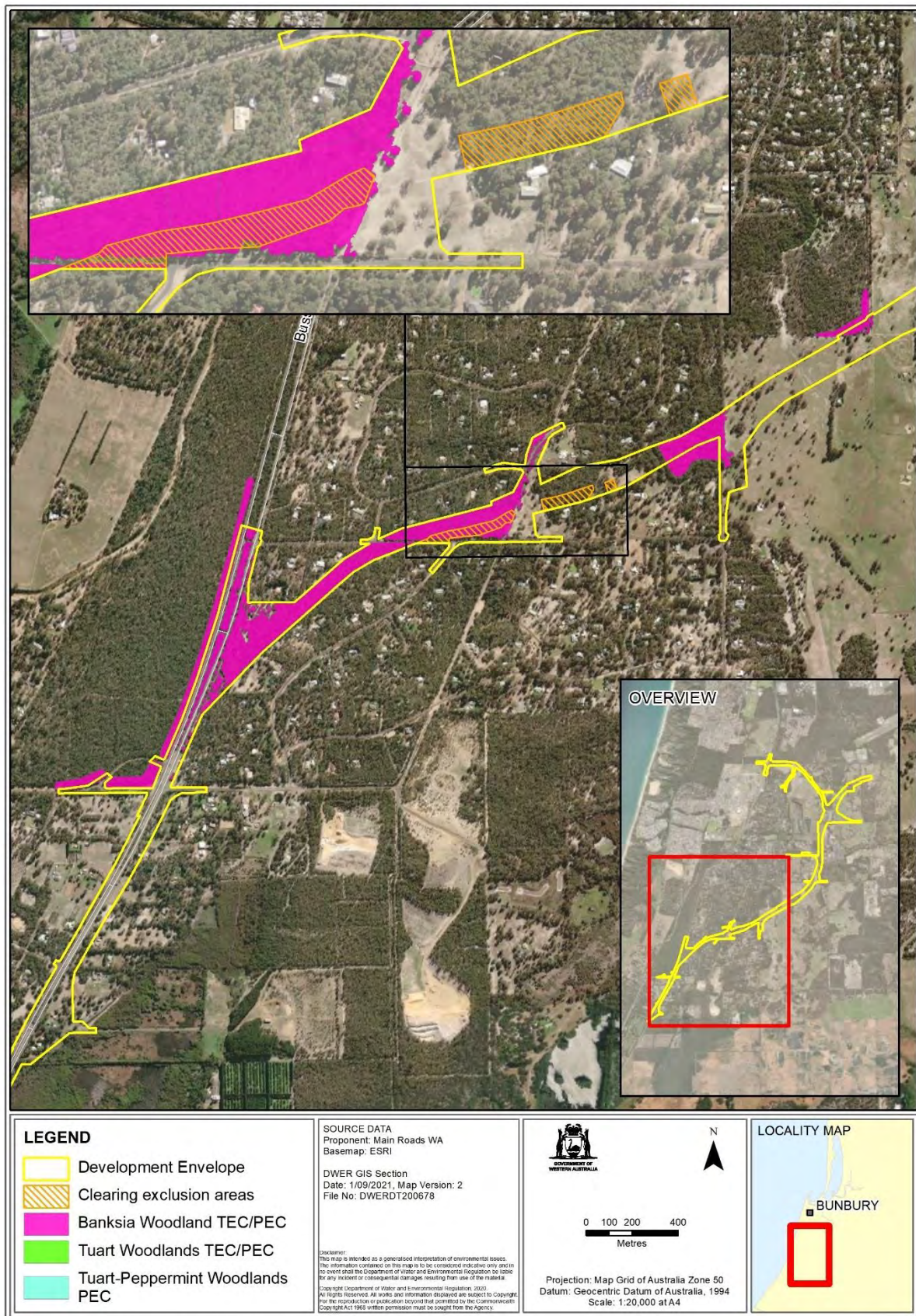
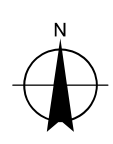
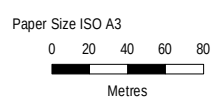
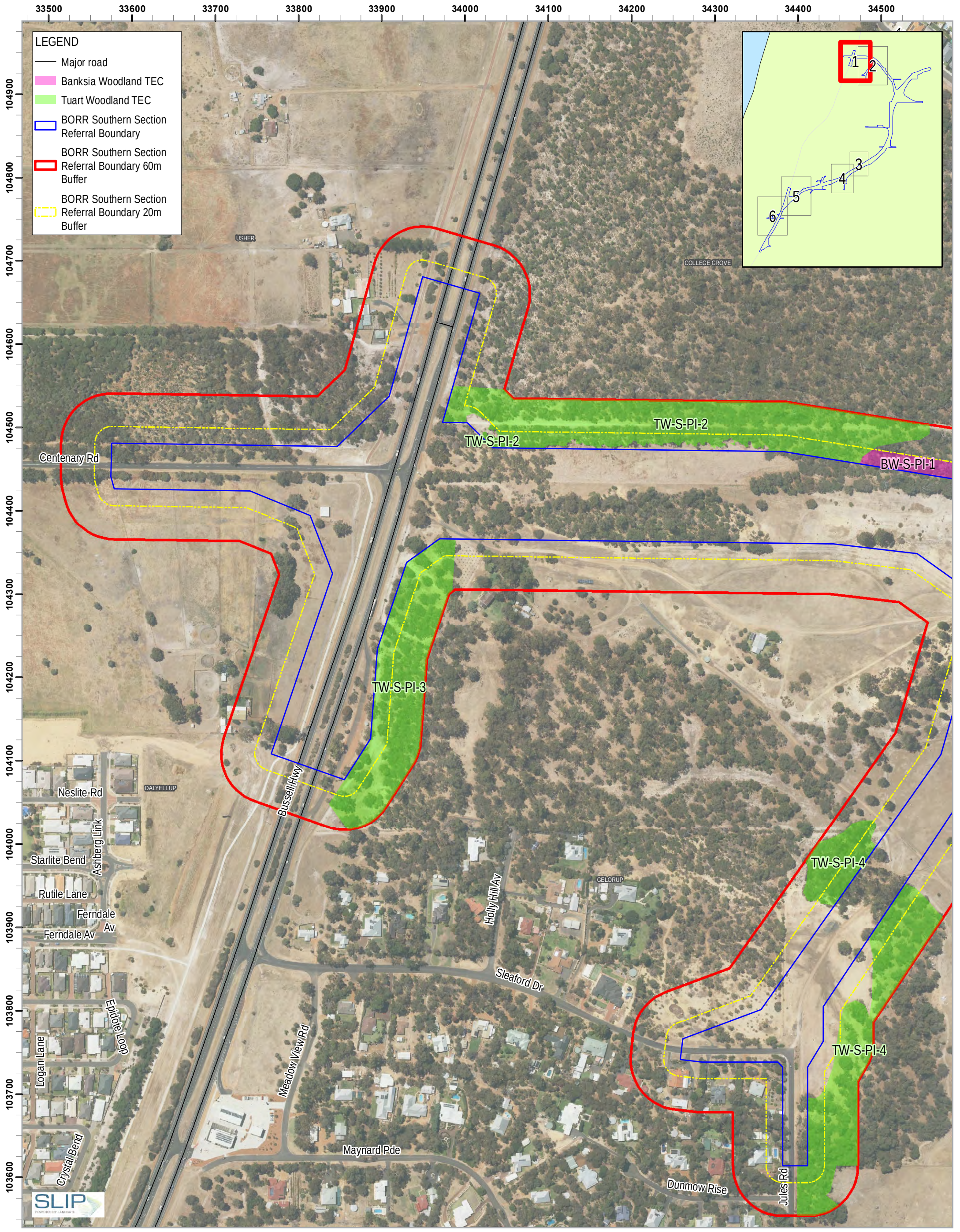


Figure 2b Priority Ecological Communities Banksia Woodlands, Tuart Woodlands and Tuart-Peppermint Woodlands (south)

Figure 3. Distribution of Banksia Woodlands TEC/PEC, Tuart Woodlands TEC/PEC adjacent to the Development Envelope.

Note: A 60m buffer to the Development Envelope is included for Tuart Woodlands TEC/PEC in this figure in relation to monitoring requirements under Commonwealth Approval Notice EPBC 2019/8543.



Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 Perth Coastal Grid 1994



Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

TECs adjacent to the
Development Envelope

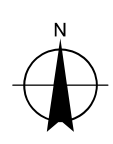
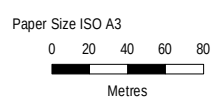
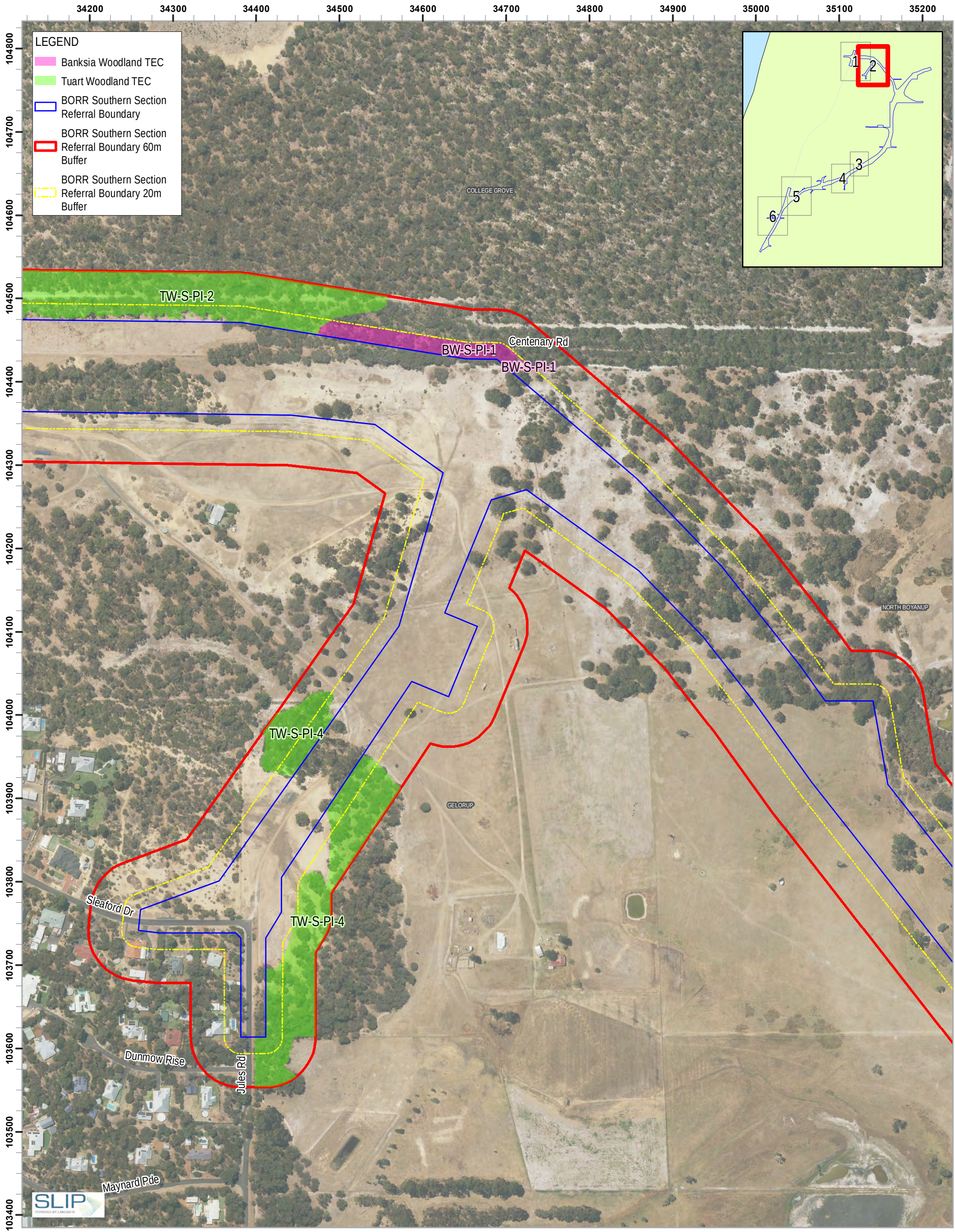
Project No. 61-37041
Revision No. 6
Date 30/06/2022

Page 1 of 6

FIGURE 3

G:\137041\119_0_CIS\Maps\Working\BORR South EPBC\AID\AWE submission\Vegetation Management Plan\6137041_003_BORR South TEC Adjacent_Rev6.mxd
Print date: 30 Jun 2022 - 14:44

Data source: BORR team: South referral boundary - 20191212, TECIPEC - 202005, Reference sites - 20200327, Landgate: Roads - 201805, Localities - 20180319, Imagery - WA Now accessed 20220630, EcoEdge: Reference sites - 20200325, Created by: mmikonen



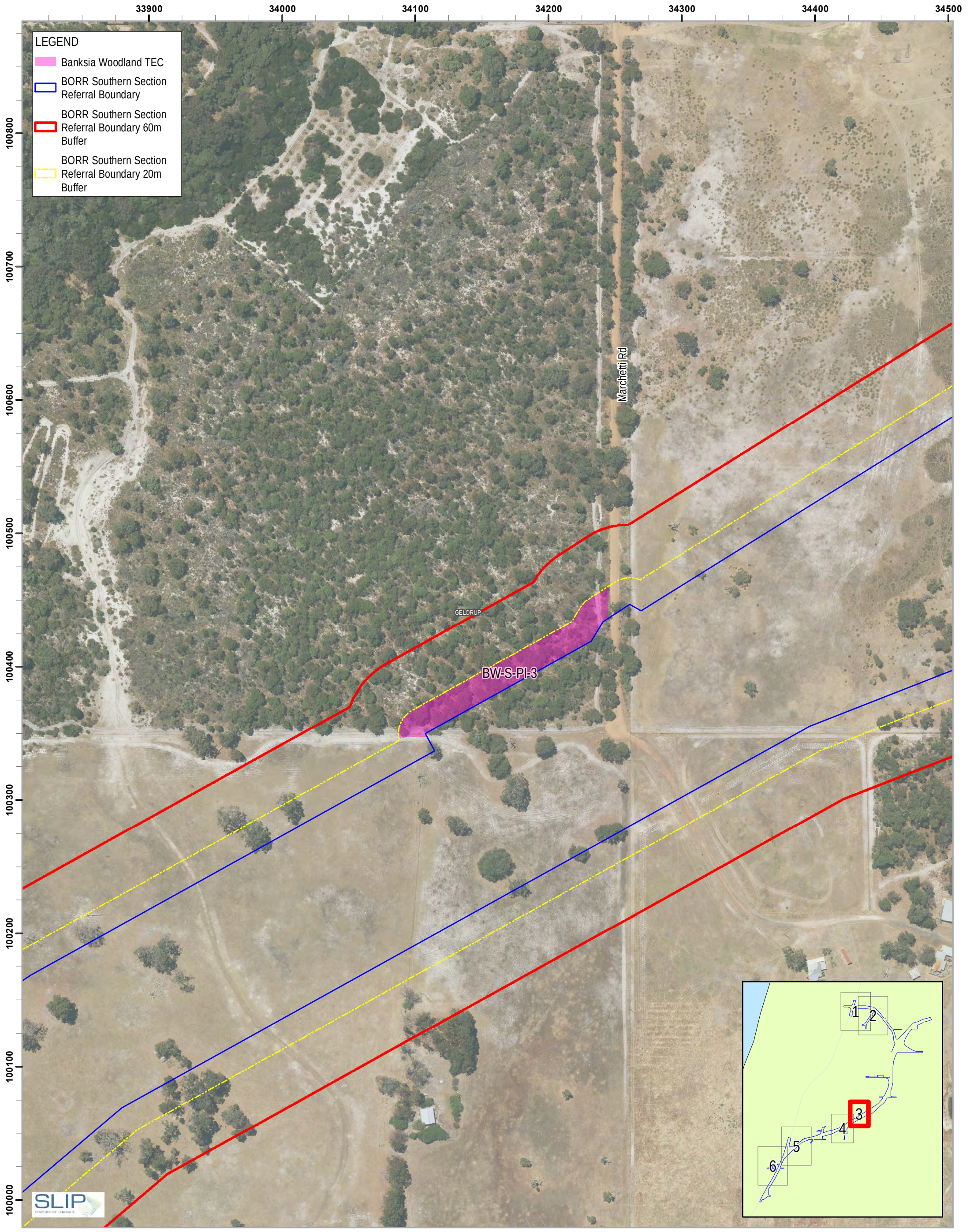
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 Perth Coastal Grid 1994



Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

TECs adjacent to the
Development Envelope

Project No. 61-37041
Revision No. 6
Date 30/06/2022



LEGEND

- Banksia Woodland TEC
- BORR Southern Section Referral Boundary
- BORR Southern Section Referral Boundary 60m Buffer
- BORR Southern Section Referral Boundary 20m Buffer



Paper Size ISO A3

0 20 40 60 80 Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 Perth Coastal Grid 1994

N

BORR Team

Australian Government
BUILDING OUR FUTURE

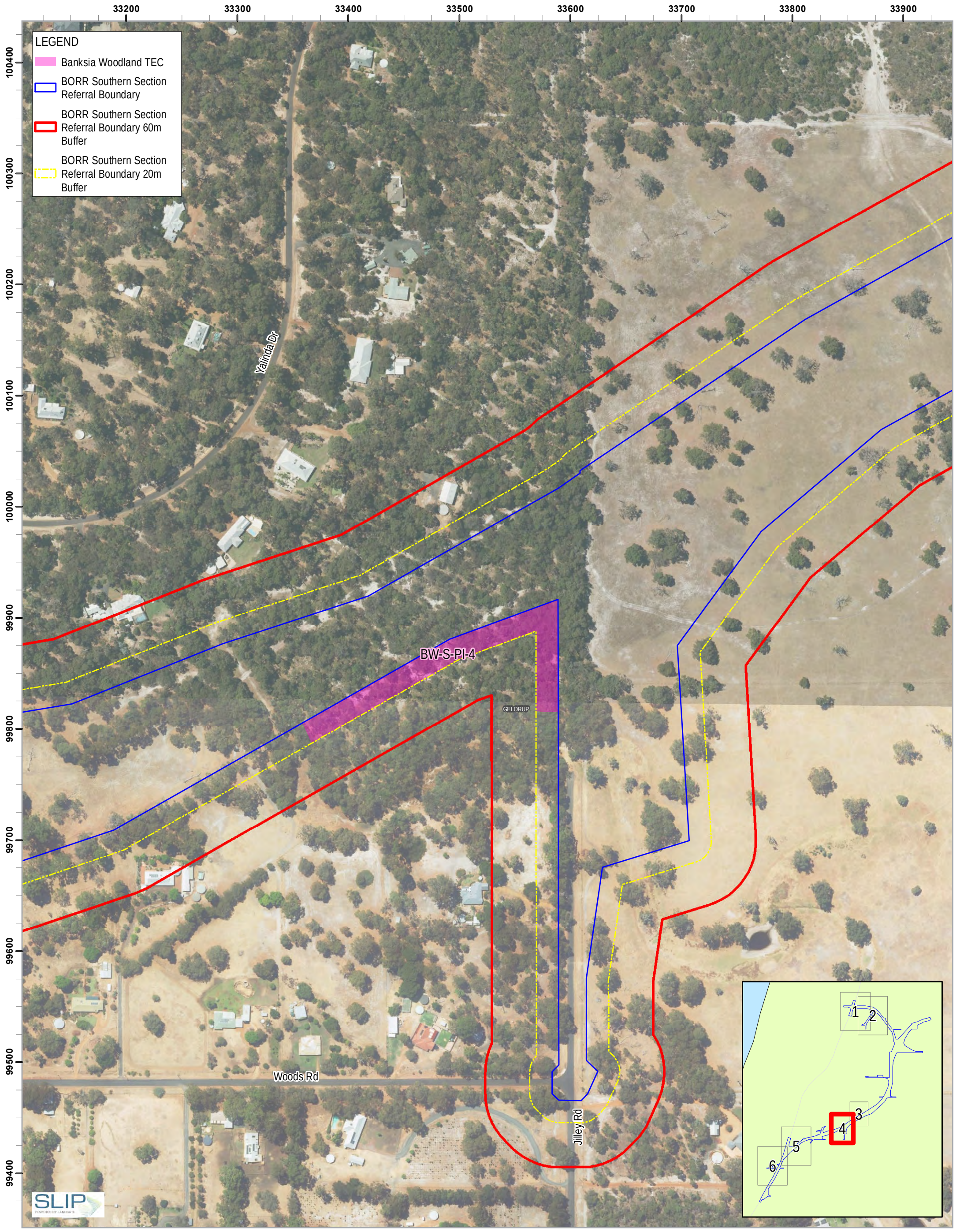
mainroads
WESTERN AUSTRALIA
BUNBURY OUTER RING ROAD | PLANNING AND DEVELOPMENT

Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

TECs adjacent to the
Development Envelope

Project No. 61-37041
Revision No. 6
Date 30/06/2022

Page 3 of 6
FIGURE 3



Paper Size ISO A3
0 20 40 60 80
Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 Perth Coastal Grid 1994

BORR Team

Australian Government
BUILDING OUR FUTURE

mainroads
WESTERN AUSTRALIA
BUNBURY OUTER RING ROAD | PLANNING AND DEVELOPMENT

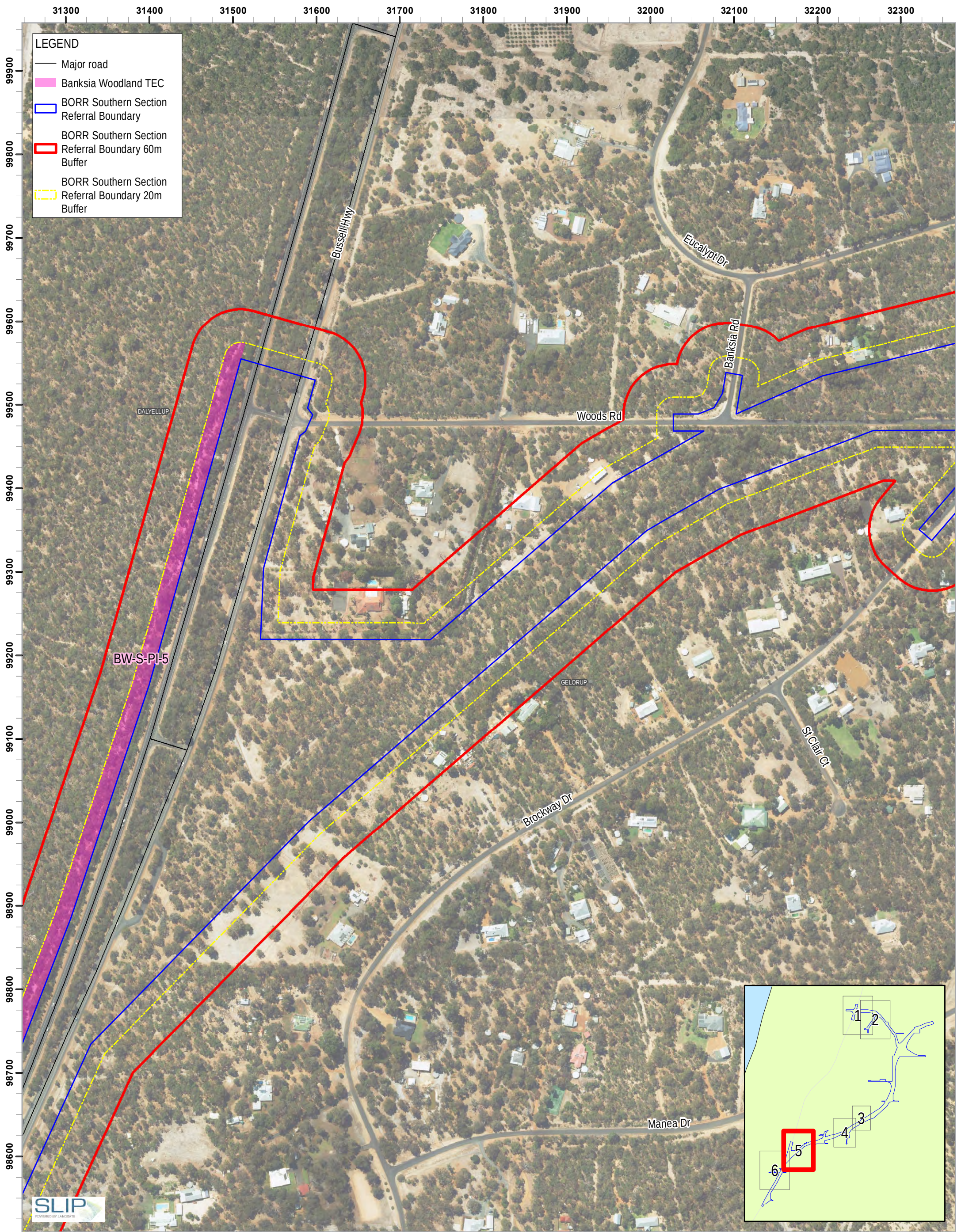
Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

TECs adjacent to the Development Envelope

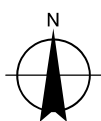
Project No.	61-37041
Revision No.	6
Date	30/06/2022

Page 4 of 6

FIGURE 3



Paper Size ISO A3
0 20 40 60 80
Metres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 Perth Coastal Grid 1994



Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

TECs adjacent to the
Development Envelope

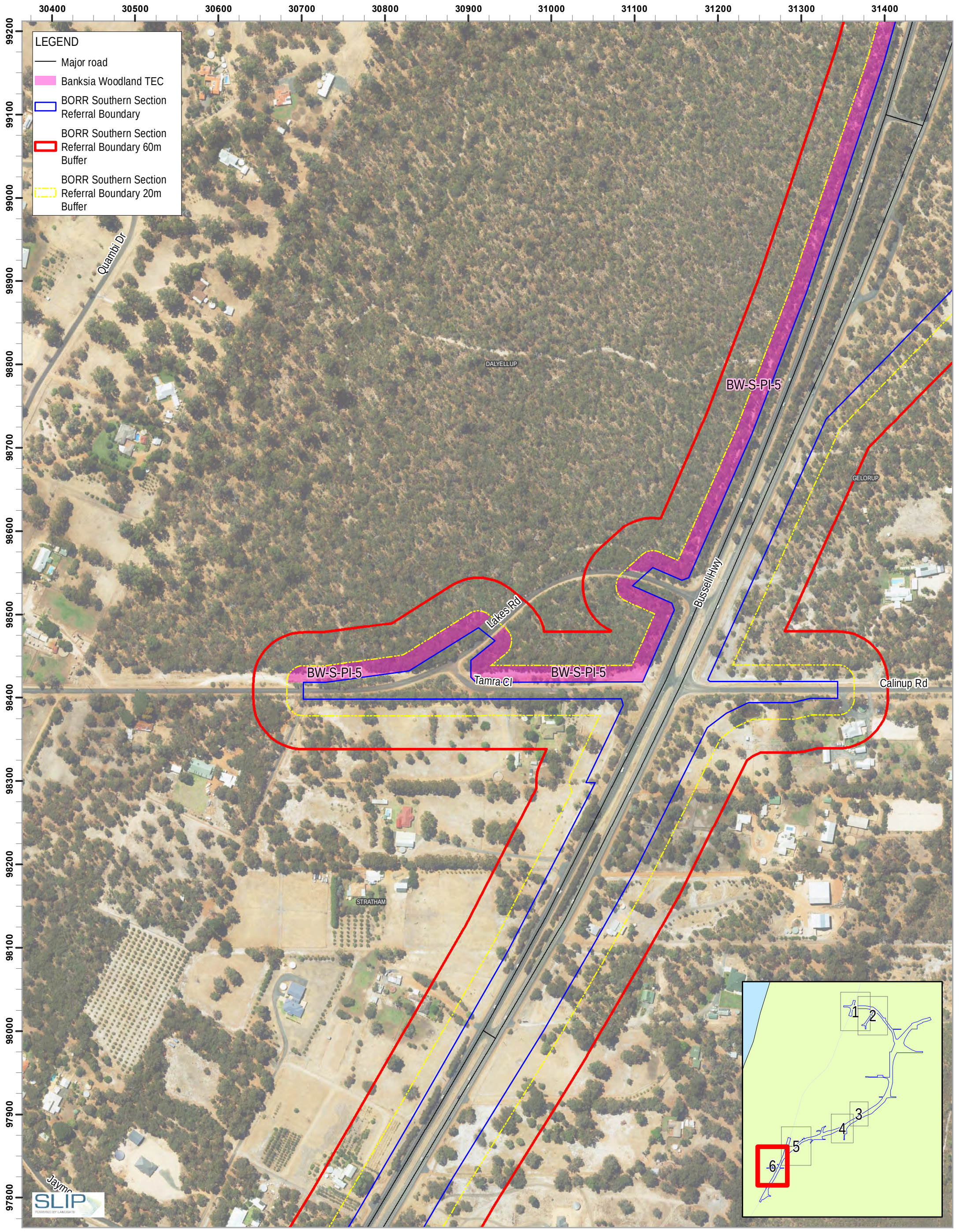
Project No. 61-37041
Revision No. 6
Date 30/06/2022

Page 5 of 6

FIGURE 3

G:\6137041\119_0_CIS\Map\Working\BORR South EPBC\AID\AWE submission\Vegetation Management Plan\6137041_003_BORR South TEC Adjacent_Rev6.mxd
Print date: 30 Jun 2022 - 14:43

Data source: BORR team: South referral boundary - 20191212, TECIPEC - 202005, Reference sites - 20200327, Landgate: Roads - 201805, Localities - 20180319, Imagery - WA Now accessed 20220630, EcoEdge: Reference sites - 20200325. Created by: mmikkonen



Paper Size ISO A3
0 20 40 60 80
Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 Perth Coastal Grid 1994

BORR Team

Australian Government
BUILDING OUR FUTURE

mainroads
WESTERN AUSTRALIA
BUNBURY OUTER RING ROAD | PLANNING AND DEVELOPMENT

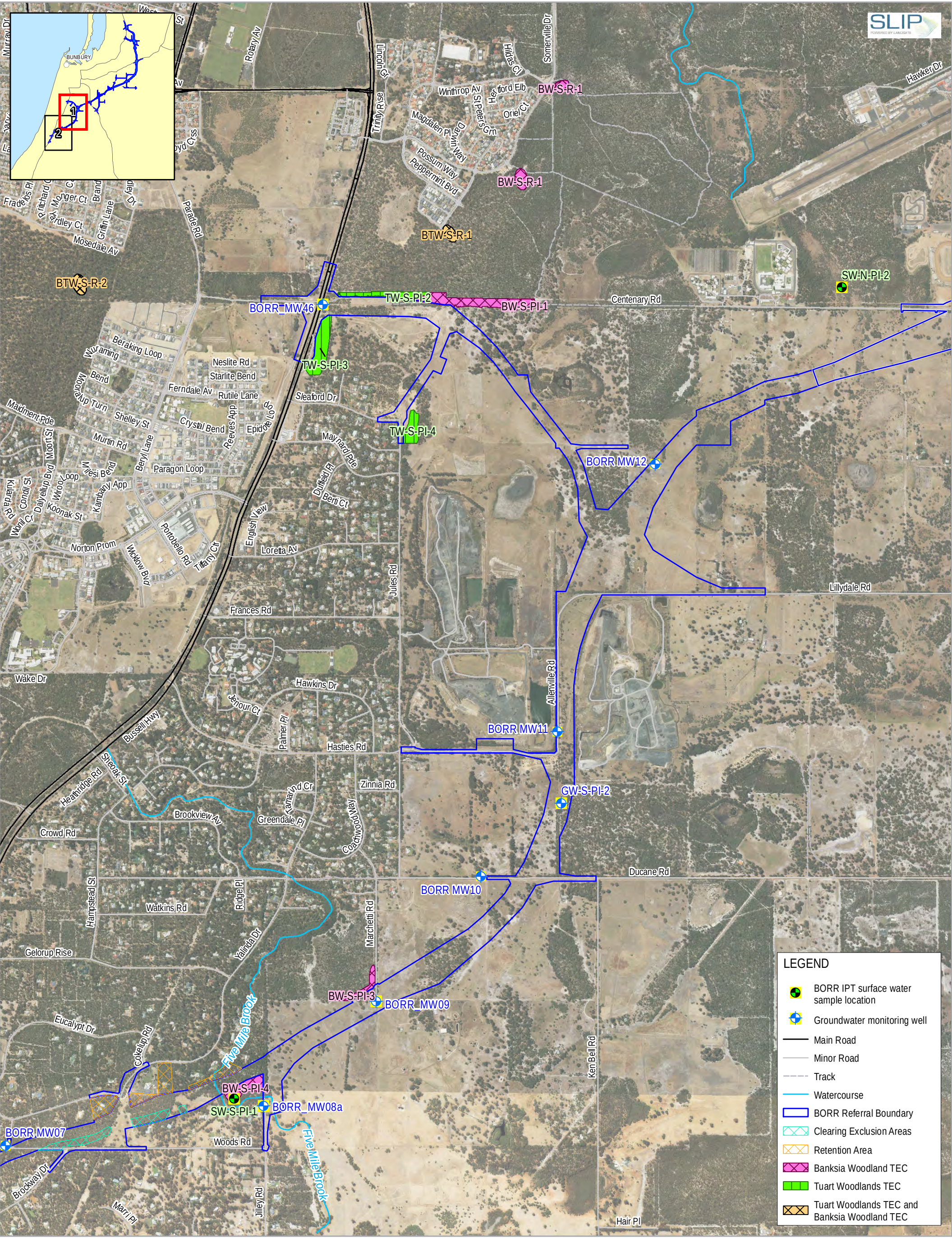
Main Roads Western Australia
Bunbury Outer Ring Road Southern Section

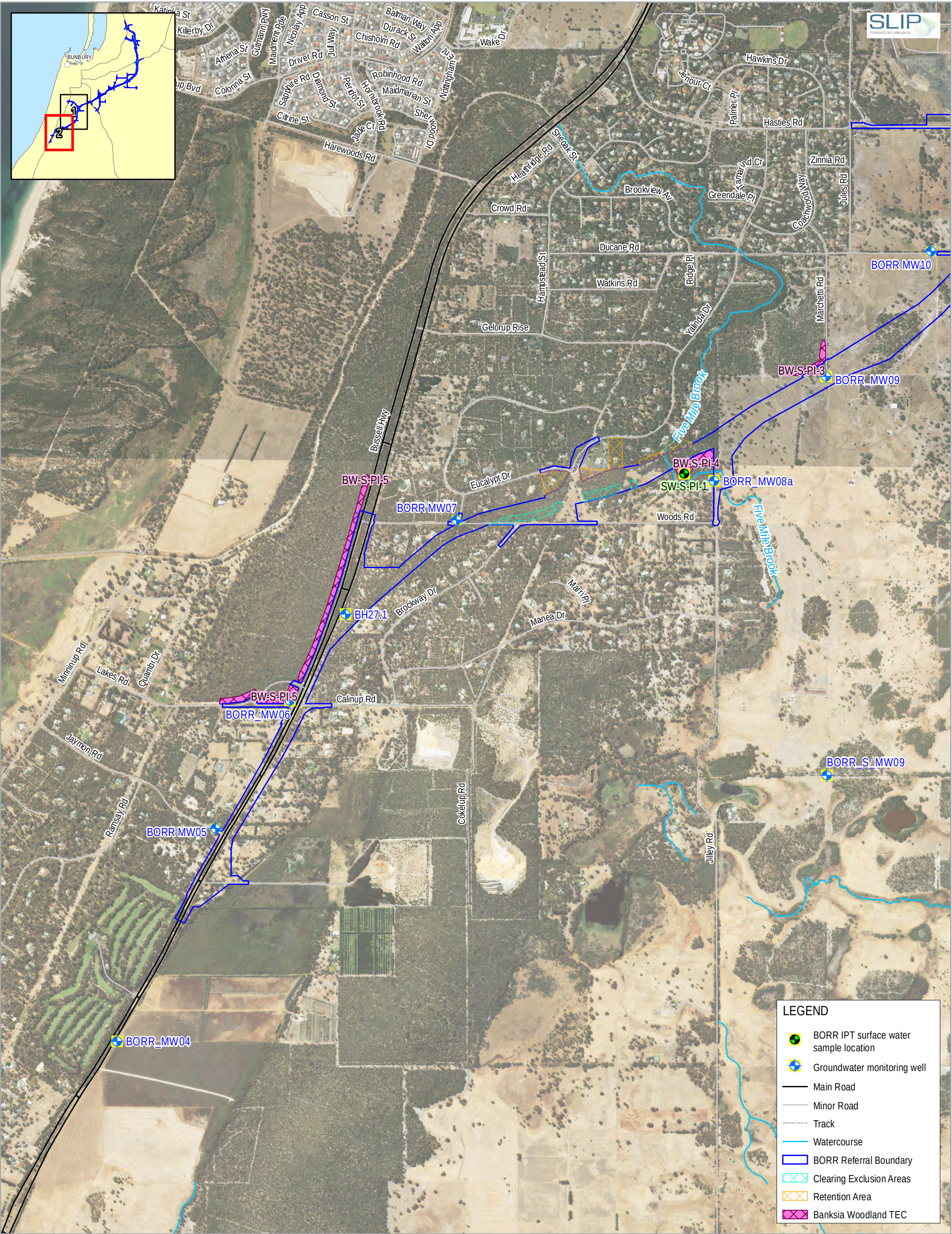
TECs adjacent to the
Development Envelope

Project No. 61-37041
Revision No. 6
Date 30/06/2022

Page 6 of 6
FIGURE 3

Figure 4. Overview of monitoring locations for Banksia Woodlands TEC/PEC, Tuart Woodlands TEC/PEC.





Appendix 1: Environmental Performance Report – Priority Ecological Communities (EcoEdge, 2026)

**Bunbury Outer Ring Road
Southern Section**

**Threatened and Priority Ecological Communities
Annual Monitoring Report
31 May 2025 – 31 May 2026**



Prepared for
Main Roads Western Australia
July 2026



PO Box 9179, Picton WA 6229

0484 771 825 | enquiries@ecoedge.com.au

Version	Origin	Review	Review date	Release approval	Issue date
Final draft	CS	DB/EH		Ecoedge	02/07/2026
Final	MRWA	Ecoedge	21/07/2026	Ecoedge	21/07/2026

Contents

Statement of Limitations	9
Reliance on Data	9
Report for the Benefit of the Client	9
1 Introduction	10
2 Methods	12
2.1 Location of monitoring sites	12
2.2 Site nomenclature	14
2.3 Timing and frequency of survey	14
2.4 Transects and Quadrats	16
2.5 Boundary photopoints	19
2.6 Transect and photopoint monitoring site summary	20
2.7 Drainage monitoring	22
2.8 Comparative analysis	23
2.9 Reportable decline	24
3 Personnel	24
4 Limitations	25
5 Results	26
5.1 Weather	26
5.2 Potential impact and reference site vegetation descriptions	30
6 Comparison of potential impact and reference site transect monitoring sites	33
6.1 Weeds	38
6.1.1 Banksia woodlands	38
6.1.2 Claypans	38
6.1.3 Tuart woodlands	38
6.2 Native diversity	39
6.2.1 Banksia woodlands	39
6.2.2 Claypans	39
6.2.3 Tuart woodlands	40
6.3 Shrub and tree stress	40
6.3.1 Banksia woodlands	40
6.3.2 Claypans	40
6.3.3 Plant deaths	41
7 Comparison of biannual photopoints	43

7.1	Vegetation structure	43
7.2	Vegetation condition	43
7.3	Weed cover	46
7.3.1	Banksia woodlands	48
7.3.2	Claypans	53
7.3.3	Tuart woodlands	54
7.4	Native cover	59
7.5	Plant stress	61
7.6	Banksia Woodlands	62
7.7	Tuart woodland	75
7.8	Claypans	81
8	Drainage Monitoring	83
8.1	Inundation effects on TEC PEC	83
8.2	Erosion effects on TEC PEC	83
8.3	Drying effects on TEC PEC	83
8.4	Phytophthora Dieback	90
9	Conclusion	92
10	Digital tools	93
11	References	94
12	Appendices	96
	Appendix 1. Location of current boundary and transect photopoints, with current and baseline vegetation condition, percentage cover for weeds and native plants at site, baseline 2022 and 2026.	
	Appendix 2. Appendix 2 – Monitoring Data and Photographic Records in Autumn 2026.	
	Appendix 3. Comparative data for vegetation condition, crown extent density, weed cover and native cover from spring/summer 2019 to autumn 2024.	
	Appendix 4. Vegetation condition scale (EPA, 2016)	
	Appendix 5. Recording sheet template – developed into Fulcrum app for data collection	
	Appendix 6. TW-S-PI-2 site report (autumn 2026) for this site showing recovery from drying effect in 2024	

Table of Tables

Table 1. Current site name and location within the Southern project area.	12
Table 2. Annual monitoring program overview.....	15
Table 3. Monitoring dates of monitoring rounds.	15
Table 4. Cover scores for vascular plants within transect quadrats (BORR Team 2019).	18
Table 5. Plant stress scale for shrubs and trees within transect quadrats.....	19
Table 6. Breakdown of monitoring points at each site.....	21
Table 7. Descriptions of the three disturbance variables recorded during drainage monitoring.	22
Table 8. Mid-point category score for weed cover.....	23
Table 9. Mid-point category score for native cover.	24
Table 10. Mid-point category score for plant stress.....	24
Table 11. Limitations of the field monitoring with regard to assessment adequacy and accuracy.	25
Table 12. Rainfall (mm) statistics for 2019 till autumn 2026 for the Bunbury weather station No. 9965 (BOM 2026).	26
Table 13. Temperature C° statistics for 2019 till autumn 2026 for the Bunbury weather station No. 9965 (BOM 2026).	27
Table 14. Vegetation descriptions for current monitoring sites.....	31
Table 15. Monitoring points with changed vegetation condition.....	44
Table 16. Number of monitoring points with a change (increase) in weed during the baseline monitoring period per monitoring site.....	46
Table 17. Summary of drainage monitoring sites and points for the Southern Project Area.	84
Table 18. Breakdown of observed impacts of Phytophthora dieback per monitoring sites in autumn 2025, relative to Autumn 2022 baseline levels.....	91

Table of Figures

Figure 1. Location of potential impact and reference sites within the BORR Southern vegetation monitoring program.....	13
Figure 2. Layout plan for a transect.....	17
Figure 3. Comparison of the long term (1995 – May 2026) mean temperature and rainfall data and 2025 / 2026 data for the Bunbury weather station No. 9965 (BOM 2026).	27
Figure 4. Long term and 2019 to 2025 mean wet season (May to September) rainfall for Bunbury weather station 9965 BOM (BOM 2025).	28
Figure 5. Rainfall deficiencies: 9 months 1 August 2023 to 30 April 2024. (BOM 2024a, used with permission – Creative Commons, CC- BY).	28
Figure 6. Root zone soil moisture for April 2024 (BOM 2024b, used with permission – Creative Commons, CC- BY).....	29
Figure 7. Root zone soil moisture for Nov 2024 (BOM 2024c, used with permission – Creative Commons, CC- BY).....	29
Figure 8. Banksia woodland transect graphs showing comparative data for potential impact sites and reference sites for weeds, native species and orchids.	34
Figure 9. Claypan transect graphs showing comparative data for potential impact sites and reference sites for weeds, native species and orchids.	35
Figure 10. Banksia Tuart woodland transect graphs showing comparative data for potential impact sites and reference sites for weeds, native species and orchids.	36
Figure 11. Graphs showing comparative data for potential impact sites and reference sites for average tree and shrub stress in Banksia woodland, Claypan and Banksia Tuart woodland TEC PEC sites.	37
Figure 12. Changes in average weed cover for all monitoring sites for the duration of the monitoring period.	47
Figure 13. Change in average weed cover for Banksia woodland, potential impact and reference sites.	48
Figure 14. Change in weed cover for BW-S-PI-1.....	49
Figure 15. Change in weed cover for BW-S-PI-4.....	50
Figure 16. Change in weed cover for BW-S-PI-5.....	51
Figure 17. Change in weed cover for BW-S-PI-5.....	52
Figure 18. Change in average weed cover for claypans, potential impact and reference sites.	53
Figure 19. Change in average weed cover for Tuart woodland potential impact and reference sites.....	54
Figure 20. Change in weed cover for TW-S-PI-2.	56
Figure 21. Change in weed cover for TW-S-PI-3.	57
Figure 22. Change in weed cover for BTW-S-R2-T1.....	57

Figure 23. Average native cover of all potential impact sites.	59
Figure 24. Average native cover of all reference sites.	60
Figure 25. Average tree and shrub stress at potential impacts sites.	61
Figure 26. Average tree and shrub stress at reference sites.	62
Figure 27. Change in average large shrub and tree stress for Banksia woodland, potential impact and reference sites.	62
Figure 28. Change in average large shrub and tree stress for Banksia woodland potential impact site, BW-S-PI-1.	63
Figure 29. Change in average large shrub and tree stress for Banksia woodland potential impact site BW-S-PI-3.	65
Figure 30. Change in average large shrub and tree stress for Banksia woodland potential impact site, BW-S-PI-4.	67
Figure 31. Change in average large shrub and tree stress for Banksia woodland potential impact site BW-S-PI-5.	72
Figure 32. Large shrub and tree stress at BW-S-R-1.	74
Figure 33. Change in average large shrub and tree stress for Tuart woodland, potential impact and reference sites.	75
Figure 34. Change in average large shrub and tree stress for Tuart woodland potential impact TW-PI-S-2.	77
Figure 35. Chronology of stress-affected monitoring points at TW-S-PI-2 spring 2023 and autumn 2024.	78
Figure 36. Chronology of stress-affected monitoring points at TW-S-PI-2 autumn 2025 and autumn 2026.	79
Figure 37. Change in average large shrub and tree stress for Tuart woodland potential impact site TW-S-PI-3.	80
Figure 38. Change in average large shrub and tree stress for the claypan potential impact and reference sites.	82

Table of Plates

Plate 1. <i>Hibbertia hypericoides</i> in spring 2025 (BW-S-PI-5), showing relictual evidence of the 23/24 drought.....	42
Plate 2. BW-S-PI-5_P28 with Freesia and <i>Oxalis pes-caprae</i> colonising the site.	44
Plate 3. Weed loads adjacent to BORR, near to BW-S-PI-1_P01, are suppressed with mulch autumn 2026.....	49
Plate 4. Well maintained revegetation area with a low weed load adjacent to BW-S-PI-5_P21 in autumn 2026.....	52
Plate 5. Cleared areas adjacent to TW-S-PI-2 are relatively free of weeds in autumn 2024 and spring 2024	55
Plate 6. TW-S-PI-3_P02 in a Degraded condition.	58
Plate 7. BW-S-PI-1_P03 plant stress in spring 2024 compared to spring 2022.....	64
Plate 8. Photo showing the area adjacent to BORR and BW-S-PI-1_P1_P05, undisturbed and free of weeds.	65
Plate 9. Drought affected <i>Hibbertia hypericoides</i> near BW-S-PI-5_P23 in autumn 2024.	68
Plate 10. Drought affected <i>Phlebocarya ciliata</i> located near BW-S-PI-5_P33, autumn 25 and autumn 26.....	68
Plate 11. The grey shrubs in the understorey are stressed <i>Hibbertia hypericoides</i> near BW-S-PI-5_P16, autumn 2025.....	69
Plate 12. Shows an essentially healthy understorey, including <i>Hibbertia hypericoides</i> , near BW-S-PI-5_P25, autumn 2025.....	69
Plate 13. Shows a healthy understorey and canopy vegetation and low weed revegetation near BW-S-PI-5_P18, autumn 2026.....	70
Plate 14. Shows a healthy understorey and canopy vegetation near BW-S-PI-5_P18, autumn 2026.	70
Plate 15. Recovering <i>Agonis flexuosa</i> trees and some young saplings near BW-S-PI-8_P07.	73
Plate 16. BW-S-PI-8_P01 autumn 24 and spring 24. Note that the Banksia in the foreground had to be removed for the installation of the sound wall.....	74
Plate 17. TW-S-PI-2_P16 showing recovering <i>Agonis flexuosa</i>	76
Plate 18. Revegetation activities adjacent to TW-S-PI-3_P01 which is located on the east side of the fence.....	81
Plate 20. Ongoing drying effects from autumn 2024, with trees showing signs of recovery with epicormic growth.....	88
Plate 21. Epicormic growth and recovery in autumn 2025 and autumn 2026.....	89

Statement of Limitations

Reliance on Data

In the preparation of this report, Ecoedge has relied on data, surveys, analyses, designs, plans and other information provided by the Client and other individuals and organisations, most of which are referred to in the report. Unless stated otherwise in the report, Ecoedge has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report are based in whole or in part on the data, those conclusions are contingent upon the accuracy and completeness of the data. Ecoedge will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, unavailable, misrepresented or otherwise not fully disclosed to Ecoedge.

Report for the Benefit of the Client

The report has been prepared for the benefit of the Client and for no other party. Ecoedge assumes no responsibility and will not be liable to any other person or organisation for or in relation to any matter dealt with or conclusions expressed in the report or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report (including, without limitation, matters arising from any negligent act or omission of Ecoedge or for any loss or damage suffered by any other party relying on the matters dealt with or conclusions expressed in the report). Other parties should not rely upon the report or the accuracy or completeness of any conclusions and should make their own enquiries and obtain independent advice in relation to such matters.

1 Introduction

This fourth annual Threatened and Priority Ecological Community (TEC PEC) monitoring report is prepared in view of conditions stipulated under approvals issued by both the Western Australian State Minister for the Environment (Ministerial Statement 1191) and the Commonwealth Environment Minister (EPBC 2019/8543) for the Bunbury Outer Ring Road (BORR) Southern Section Project. These conditions relate to the protection and mitigation of impacts to Threatened Ecological Communities protected under the *Commonwealth Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Threatened and Priority Ecological Communities protected under the State *Environmental Protection Act 1986* (EP Act).

These communities include¹:

- Banksia woodlands of the Swan Coastal Plain, listed as both a TEC (Commonwealth (Cth)) and Priority 3 PEC (State) (Banksia woodlands TEC PEC)
- Tuart (*Eucalyptus gomphocephala*) Woodlands and Forests of the Swan Coastal Plain, listed as both a TEC (Cth) and Priority 3 PEC (State) (Tuart woodlands TEC PEC²).
- Southern Swan Coastal Plain *Eucalyptus gomphocephala* - *Agonis flexuosa* woodlands (floristic community type 25)³

The conditions relevant to this TEC PEC monitoring report are presented below.

EPBC Approval 2019/8543

Approval date: 29 June 2022

Relevant conditions:

- '4. The approval holder must not cause a reduction in habitat quality within the clearing exclusion areas.
5. For the protection of listed threatened species and communities, the approval holder must not cause a reduction in habitat quality, for:
 - a. any Banksia Woodland TEC within 20 metres of the proposal area.

¹ An additional state and Commonwealth protected TEC, the Herb Rich Shrublands in Claypans (Floristic Community Type (FCT) 08 TEC, part of the Federally protected Claypans of the Swan Coastal Plain TEC (Claypan TEC) was also monitored. This community is NOT subject to any environmental approvals associated with the proposal, but for precautionary reasons was included in the TEC PEC monitoring program submitted as part of the referral documentation submitted for State approval in 2020 (BORR Team 2020). The monitoring program states that:

'No Claypan TEC occurrences will be impacted by the Proposal however one occurrence, situated approximately 500 m at its nearest from the Proposal Area is being included in the monitoring plan to enable the detection of any indirect impacts resulting from Proposal implementation.'

² Tuart woodland and Banksia woodlands co-occur in the Project Area and are referred to as Banksia Tuart Woodlands in this report.

³ Can be a component of the Endangered Banksia Woodlands of the Swan Coastal Plain EPBC listed TEC or the Critically Endangered Tuart (*Eucalyptus gomphocephala*) woodlands and forests of the Swan Coastal Plain EPBC Act listed TEC.

b. any Tuart Woodlands and Forests TEC within 60 metres of the proposal area.'

Condition 12 required a Vegetation Management Plan (VMP) to be prepared that established the environmental management actions to manage, monitor and mitigate direct and potential indirect impacts on the TECs. It also required the identification of the baseline habitat quality of the areas of TEC to be protected.

Condition 28 requires the approval holder to prepare a compliance report for each 12 months following the commencement date of the action.

State Approval Ministerial Statement (MS) 1191.

Approval date: 31 May 2022

Relevant conditions:

3-1(2) 'The proponent shall implement the proposal to achieve the following environmental outcome: (2) ensure there are no project attributable indirect impacts, when compared to preconstruction baseline conditions, to Banksia Woodlands, Tuart Woodlands and Tuart-Peppermint Woodlands within twenty (20) metres outside the development envelope (defined in Figure 2a and Figure 2b) and within the clearing exclusion areas (defined in Figure 1) (Minister for Environment 2022).'

3-3 The proponent shall continue to undertake monitoring during and post-construction until the CEO is satisfied that the proponent has demonstrated the outcomes in condition 3-1(2) have been met.

3-4 The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:

- (1)** outline the monitoring that was undertaken during the implementation of the proposal;
- (2)** outline the results of the monitoring undertaken to report whether the environmental outcomes specified in condition 3-1(2) were achieved;
- (3)** report whether the outcomes in conditions 3-1(1) and 3-1(2) were achieved; and
- (4)** outline any management actions undertaken during the implementation of the proposal to meet the outcomes in conditions 3-1(1) and 3-1(2).

Condition **12-1** requires the first compliance assessment report to be submitted within 15 months of the date of issue of the approval, which is 31 August 2023.

This TEC PEC monitoring report is submitted in respect of condition 12-1 of State approval MS 1191 for the period 31 May 2025 to 31 May 2026. It compares the results of parameters monitored since the construction of the BORR Southern Project area commenced in August 2022 with baseline levels established by Ecoedge between October 2019 and July 2022 (Ecoedge 2023).

2 Methods

There are two components to the monitoring program: vegetation monitoring and drainage monitoring.

The vegetation monitoring program focuses on monitoring changes in the status of vegetation at reference sites and potential impact sites, such as its condition, species composition, vegetation structure and plant stress. Vegetation monitoring is carried out biannually in autumn and spring.

The drainage monitoring focuses on impacts of drainage and changes in hydrology on vegetation, specifically impacts from erosion, inundation/flooding and drying effects. Drainage monitoring is carried out quarterly in summer, autumn, winter and spring.

Data is collected from all TEC PEC sites that have the potential to be impacted by the project, due to their close proximity to the project and TEC PEC reference sites that are unlikely to be impacted due to their distance away from the project.

2.1 Location of monitoring sites

There are nine potential impact and five reference monitoring sites within the BORR Southern project area (**Table 1**). The location of these sites is shown in **Figure 1** and individual sites shown in **Appendix 1**.

Table 1. Current site name and location within the Southern project area.

No	Site Name	Location
Potential Impact Sites		
1	BW-S-PI-1	South of Centenary Road, east of Bussell Hwy
2	BW-S-PI-3	East of Yalinda Drive, west of Marchetti Road
3	BW-S-PI-4	Jilley Road north of Woods Road. Photopoints established along the BORR boundary
4	BW-S-PI-5	West of Bussell Hwy
5	BW-S-PI-8	Woods Road, Gelorup
6	CP-S-PI-1	Manea Park, middle claypan, south of CP-NS-R-2
7	TW-S-PI-2	Road reserve on the north side of Centenary Road east of Bussell Hwy, and extending into the adjacent reserve to the north
8	TW-S-PI-3	Bussell Hwy southbound, south of Centenary Road (adjacent to the parking bay)
9	TW-S-PI-4	Jules Road near Sleaford Drive
Reference sites		
10	BW-S-R-1	Manea Park (R 32963)
11	BTW-S-R-1	Manea Park, corner of Lakeside and Melaleuca Drive
12	BTW-S-R-2	North-side of Centenary Rd east of Bussell Hwy
13	CP-NS-R-1	Waterloo Nature Reserve (R46108)
14	CP-NS-R-2	Manea Park (R16044)

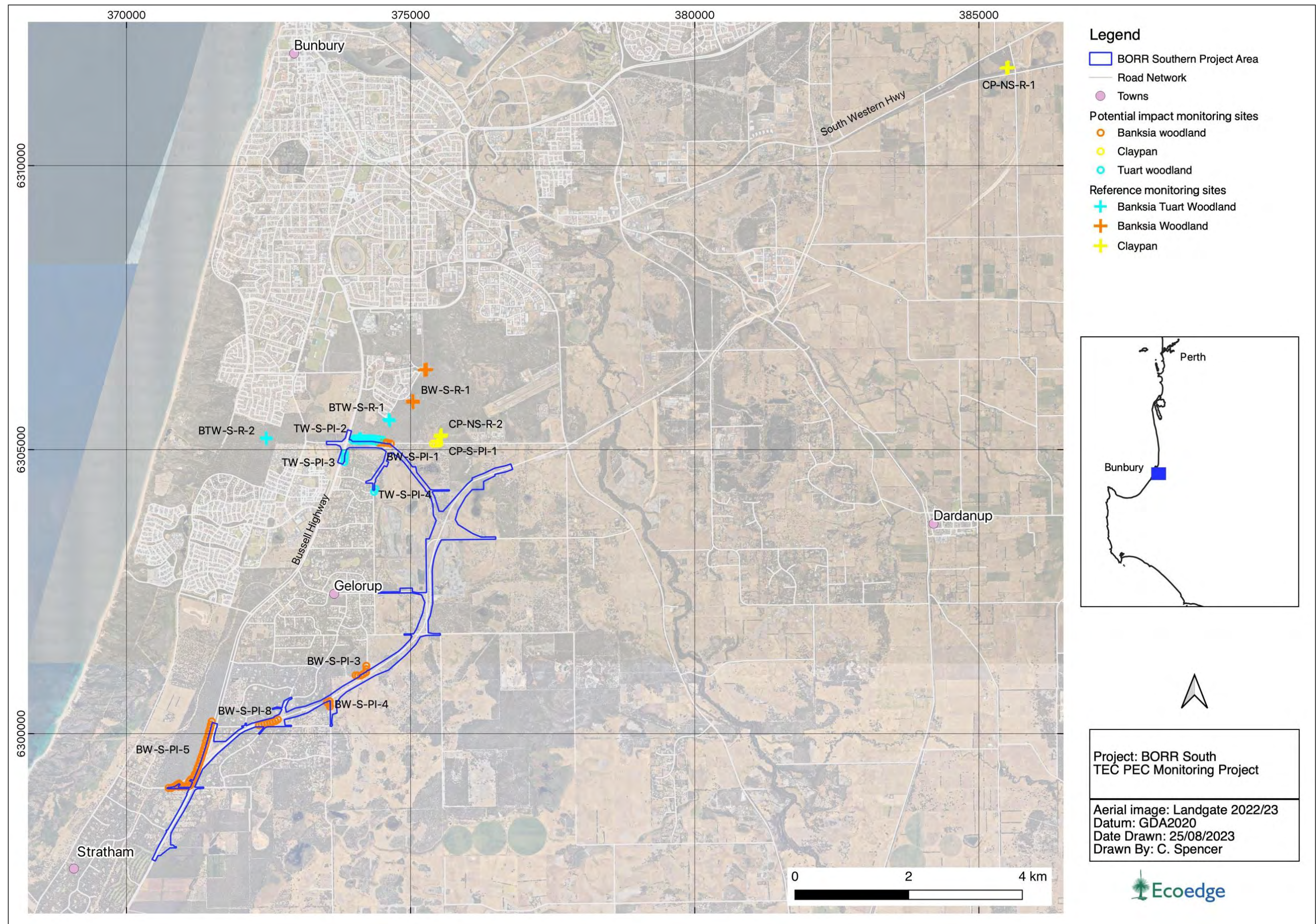


Figure 1. Location of potential impact and reference sites within the BORR Southern vegetation monitoring program.

2.2 Site nomenclature

The naming convention for vegetation monitoring points is as follows:

- Which vegetation TEC PEC type (**BW** = Banksia Woodlands, **BTW** = Banksia Tuart Woodlands, **CP** = Claypan, **TW**= Tuart Woodland)
- Whether it's in the **N**orth or **S**outh (Northern & Central or South referral areas, or **NS** for both)
- Whether it's a **P**otential **I**mpact site, or a **R**eference site.
- Whether it was a transect **T** or boundary photopoint **P** and a
- Site number if more than one site monitored in the TEC PEC.

For example, TW-S-PI-2_P01 is a potential impact Tuart Woodlands TEC site in the Southern referral area.

The naming convention for drainage monitoring points is as follows:

Example monitoring point: BTW-S-R-1_E1(a21)

BTW-S-R-1 - site name

D - drying, **E** - erosion, **I** - inundation

1 - chronological number of particular issue recorded at site.

(**a** - autumn, **w** - winter, **sp** = spring, **su** - summer) – the season first recorded.

21 -2021, the year it was first recorded.

2.3 Timing and frequency of survey

The boundary photopoint vegetation monitoring program is carried out biannually in autumn and spring. Transect vegetation monitoring is carried out annually in spring, except for the claypan transects, which are carried out twice a year⁴, once in mid-spring and once in late spring / early summer. This is to maximise the identification of herbaceous annuals, which progressively germinate following the steady subsidence of claypan water levels as the weather warms up. Drainage monitoring is conducted quarterly to account for any seasonal variations.

An overview of the aspects of the monitoring program is presented in **Table 2**, and the timing of monitoring rounds conducted to date is presented in **Table 3**.

⁴ Claypans were originally to be monitored twice once in late winter and once in spring, but observations showed that they were too inundated to be meaningfully monitored in winter. Instead, the second monitoring round was scheduled for late spring.

Table 2. Annual monitoring program overview.

Monitoring type	Activity	Sites	Frequency	Timing
Vegetation	Transects	BW-S-PI-1 BW-S-PI-5 BW-S-PI-8 TW-S-PI-2 CP-S-PI-1 BW-S-R-1 BTW-S-R-1 BTW-S-R-2 CP-NS-R-1 CP-NS-R-2	Annually	Spring
Vegetation	Claypan Transects TEC	CP-S-PI-1 CP-NS-R-15 CP-NS-R-2	Bi-annually	Dependent on rainfall, but typically October and late November.
Vegetation	Photopoints	Boundary points	Bi-annually	Spring and autumn
Drainage	Visual inspection	All sites	Quarterly	Spring, summer, autumn and winter

Table 3. Monitoring dates of monitoring rounds.

Year	Season	Drainage	Boundary photopoint	Transect/ quadrat assessment (spring only)
2019	Spring / summer	Not started	19 November to 3 December	
2020	Summer	Not started	N/A	
2020	Autumn	29-30 April	20-26 May	N/A
2020	Winter	28-31 July	N/A	4 August
2020	Spring	9 October – 28 October		
2021	Summer	10-12 February	N/A	
2021	Autumn	31 May	No monitoring	N/A
2021	Winter	7 September	N/A	N/A
2021	Spring	13 October	13 October	8 September - 14 October
2022	Summer	22 February	1 December	N/A

⁵ The CP-NS-R-1 and CP-NS-R-2 sites serve as reference sites for both the BORR Northern & Central Section and BORR Southern Section due to the limited number of suitable Claypan TEC occurrences within reasonable proximity to the project area.

Year	Season	Drainage		Boundary photopoint	Transect/ quadrat assessment (spring only)
2022	Autumn	25 May		25 & 26 May	N/A
2022	Winter	20 June		20 June	N/A
2022	Spring	17 October – 20 October		17 October – 20 October	22 September – 21 November 2022
2023	Summer	17 February 2023	N/A	N/A	
2023	Autumn	26 May 2023		22 - 26 May	N/A
2023	Winter	24 August 2023		N/A	N/A
2023	Spring	7 November 2023		29 September to 14 October	9 October - 27 November
2024	Summer	16 February 2024		N/A	N/A
2024	Autumn	25 May 2024		23 May to 27 May	N/A
2024	Winter	22 August 2024		N/A	N/A
2024	Spring	31 October 2024		25-31 October	8 October - 5 December
2025	Summer	20 February 2025		N/A	N/A
2025	Autumn	22-23 May 2025		22-23 May 2025	N/A
2026	Winter	2 August 2025		N/A	N/A
2026	Spring	30 September 2025		30 September to 17 October	14 October - 5 December
2026	Summer	18 February 2026		N/A	N/A
2026	Autumn	25 May 2026		25-26 May 2026	N/A

2.4 Transects and Quadrats

Monitoring transects of 30 m in length were established within both potential impact and reference sites⁶. The ends of each transect were marked with a steel peg, which will be left in place until the end of the monitoring program (noting that the stakes were removed from all roadside sites). Along each transect, 2 x 2 m quadrats were established at 10 m intervals, the first at 0 m and the last at 30 m. Each quadrat (marked at the corners with wooden stakes hammered into the ground) was placed alternately, left and right of the transect line. A total of four quadrats were established per transect. At most sites, only one transect was

⁶ Transects were not installed in potential impact sites located on private property, or where access was restricted.

established. A photopoint was established at either end of the transect, and a photo was taken of each quadrat. The layout of a transect is shown in **Figure 2**.

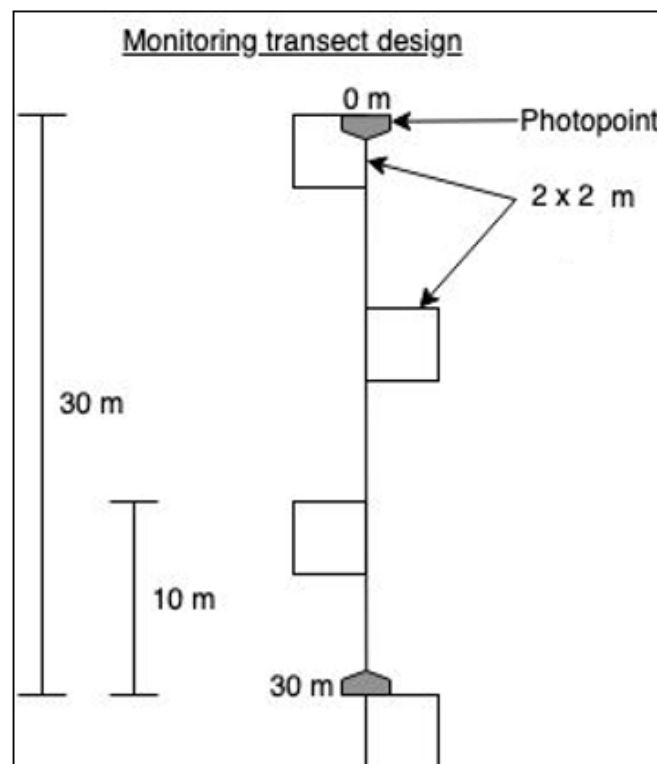


Figure 2. Layout plan for a transect.

To the extent practicable, the locations of transects at reference sites were placed in vegetation that was similar to Potential Impact sites for the Banksia and Tuart Woodlands and Claypan TEC.

The following parameters were recorded for each quadrat: Information on dominant plant species present, species cover, and plant stress within the transect quadrats. Data was recorded using various methods including Fulcrum application (<https://www.fulcrumapp.com/>), Excel spreadsheets and/or paper-based data collection sheets.

The parameters that are to be analysed for each quadrat are: species diversity, species composition, level of plant stress, weed species, plant deaths, vegetation health and ground characteristics. Changes in these parameters within the quadrats, along these transects, are compared between data collected at Reference and Potential Impact sites and between data collected at the same site over time.

The physical characteristics recorded for each quadrat include:

- Species composition: species identified in each quadrat.

- Vegetation cover⁷ assessed using the scale presented in **Table 4**.
- Stress of perennial shrubs and trees: assessed using the scale⁸ presented in **Table 5**.
- Evidence of obvious plant pests and diseases, such as Phytophthora dieback, Marri Canker and scale.
- Bare ground: assessed using the same scale as the vascular plant cover, from 1 equalling no bare ground to 10, which equalled 100% bare ground.
- Leaf litter: recorded as a % coverage of the quadrat.

Table 4. Cover scores for vascular plants within transect quadrats (BORR Team 2019).

Cover score	Description
1	Seldom found species with insignificant cover
2	Very scattered individuals of a species with less than 1% cover
3	Scattered individuals of a species with 1-5% cover
4	Any number of individuals of a species with 5-10% cover
5	Any number of individuals of a species with 10-25% cover
6	Any number of individuals of a species with 25-33% cover
7	Any number of individuals of a species with 33-50% cover
8	Any number of individuals of a species with 50-75% cover
9	Any number of individuals of a species with greater than 75 % but less than 100%
10	Any number of individuals of a species with complete cover (100%) in the stand

⁷ Vegetation cover scale: Vegetation cover at non-transect monitoring sites is recorded using the National Vegetation Information System NVIS scale instead of the Domin-Krajina scale as agreed to previously by the BORR Team. The reason for this is that it is more easily applied than the Domin-Krajina scale in non-quadrat estimates of cover and abundance.

⁸ The vegetation health / plant stress monitoring scale used for assessing plant stress in transects and at boundary photopoint from 2020 was updated from the initial round of baseline survey to include a wider range of plant stress indicators (BORR Team 11 August 2020).

Table 5. Plant stress scale for shrubs and trees within transect quadrats.

Plant Stress Level	Description
5	Plant with >81 % of the original canopy present; healthy overall; little or no leaf yellowing. No evidence of wilting of foliage. Plants not stressed.
4	Plant with 61-80% of the original canopy present; occasional dead branches (< 20 % of canopy); small patches of leaf yellowing. Plant leaves may show peripheral wilting. Plants potentially stressed.
3	Plant with 41-60 % of the original canopy present; some smaller dead branches evident (21-40 % of canopy); moderate amount of leaf yellowing (21-40 % of canopy). Plant leaves may show signs of wilting with noticeable curling of the leaf periphery. Plants exhibiting symptoms of stress.
2	Plant with 21-40 % of original canopy present; some main branches dead (50 – 80 % of canopy), abundant leaf yellowing (> 41 % of canopy). Plant leaves may show signs of wilting, with noticeable leaf curling. Plants exhibiting signs of stress.
1	Plant with <20 % of original canopy; most main branches dead; remaining leaves mostly dying off. Plant leaves may show signs of wilting with noticeable curling of the leaves (approaching closure). Plants clearly stressed.

2.5 Boundary photopoints

Boundary photopoints are located at approximately 50 m intervals along the boundary of monitoring sites and the BORR project area (not around the perimeter of monitoring sites). The monitoring boundary for each site is 20 m from the photopoint. That is, 10 m on either side of the observer (photopoint) and 20 m into the vegetation being monitored. It is considered that this area can be reasonably observed from a photopoint and will incorporate most elements required to be assessed at the monitoring point, e.g. all vegetation structural layers – upper, middle and understorey elements.

Boundary photographs are taken at right angles to the boundary towards the TEC or PEC occurrence using Fulcrum on mobile devices.

Photopoints are also situated at each end of transects (transect photopoints), with the vegetation 10 m on either side of the transect being assessed.

Photographs taken during the autumn round of photopoint monitoring are provided in **Appendix 2**.

The full set of comparative data collected since monitoring commenced for the key variables recorded at the boundary photopoint sites and transect endpoints is presented in **Appendix 3**.

At each photopoint, the following information was collected:

- The location is determined using a handheld GPS unit.
- A photograph (using the Photomon app) taken looking into the TEC/PEC or along the length of the transect.
- A description of the vegetation (including dominant tree, shrub, grass, sedge and herbaceous species), weed cover percentage, vegetation condition, evidence of erosion, flooding, pathogens, rubbish and grazing impacts.
- Major weed species and their percentage cover (except at transect photopoints⁹).
- Percentage cover of natives (autumn 2020 onwards) this value was assessed as a single, composite value in the autumn 2020 monitoring round. Prior to this, native cover was assessed as part of the assessment of vegetation structure¹⁰.
- Record the stress of the trees (dominant shrubs, in the absence of trees) within the 20 x 20 m assessment area using the revised stress scale presented in [Error! Reference source not found.](#)
- **Table 5.**

Variables of species/cover, disease, disturbance, etc., are recorded using Fulcrum.

Vegetation condition is assessed against the method of the EPA (2016) (**Appendix 4**).

Assessment of vegetation structure is based on the Keighery (1994) structural classification, which is similar to that of the foliage cover of the National Vegetation Information System (NVIS) structural classification system (NVIS 2017).

The percentage cover of native and weed vegetation cover at non-transect monitoring sites is recorded using the National NVIS (2017) canopy cover scales.

The impact of *Phytophthora* dieback and Marri canker was recorded as part of standard vegetation monitoring undertaken at all monitoring locations. Four scales of impact were recorded:

1. Low impact: 1-2 plants
2. Medium impact: active front visible, some death
3. Heavy impact: active front visible, numerous deaths
4. Old impact site: vegetation structure altered.

2.6 Transect and photopoint monitoring site summary

Transects were established at three potential impact Banksia sites (BW-S-PI-1, BW-S-PI-5, BW-S-PI-8), one potential impact Tuart site (TW-S-PI-2) and one potential impact Claypan site (CP-

⁹ This information was not collected at photopoints associated with transects because it was collected for the transect quadrats.

¹⁰ The method of assessment for native vegetation cover was not stipulated in the original scope for the project, just that it should be assessed as a percentage.

S-PI-1). The remaining potential impact sites are monitored via photopoints only. All reference sites have transects and photopoints. A breakdown of the number and type of transects and/or photopoints within each monitoring site is provided **Table 6**.

Table 6. Breakdown of monitoring points at each site.

Number	Site	Number boundary monitoring sites	Number of transects (number of photopoints in brackets)
Potential impact sites			
1	BW-S-PI-1	5	1 (2)
2	BW-S-PI-3	7	-
3	BW-S-PI-4	4	-
4	BW-S-PI-5	34	1 (2)
5	BW-S-PI-8	8	1 (2)
6	TW-S-PI-2	20	1(2)
7	TW-S-PI-3	4	-
8	TW-S-PI-4	3	-
9	CP-S-PI-1	3	1 (2)
	Total	88	5(10)
Reference sites			
1	BW-S-R-1		2 (4)
2	BTW-S-R-1		1 (2)
3	BTW-S-R-2		1 (2)
4	CP-NS-R-1 ¹¹		1 (2)
5	CP-NS-R-2		1 (2)
	Total		6(12)
	Grand Total	88	11(22)

¹¹ The CP-NS-R-1 and CP-NS-R-2 sites serve as Reference Sites for both the BORR Northern & Central Section and BORR Southern Section due to the limited number of suitable Claypan TEC occurrences within reasonable proximity to the referral area.

2.7 Drainage monitoring

Drainage monitoring was first undertaken in autumn 2020. Drainage monitoring is carried out quarterly (each season).

Drainage monitoring is conducted via a foot traverse along the length of potential impact site boundaries and along the transects within Reference sites. Three drainage disturbance variables are measured: flooding/inundation, erosion, and non-seasonal drying effects (**Table 7**). If drainage disturbance is noticed, the location of this point is recorded using a hand-held GPS, and a photograph and description of the disturbance are taken. Where a disturbance is considered to have impacted vegetation, a plant stress assessment is conducted using the scale shown in

Table 5. This scale was used to describe non-seasonal drying effects, i.e., those that would not normally be expected during the particular season.

The drainage monitoring information recorded has been based on the visual assessment field sheet created by the BORR IPT and provided in **Appendix 5**. This information is currently collected using the in-field app, Fulcrum.

Table 7. Descriptions of the three disturbance variables recorded during drainage monitoring.

Disturbance Variable	Description
Flooding/Inundation	Flooding or inundation of vegetation resulting from run-off from a roadway
Erosion	Erosion, primarily caused by water that has resulted from runoff from a roadway
Drying effects	Drying off (yellowing and/or death) of vegetation that may have been caused by changes in hydrology caused by roadway construction (Potentially as a result of new <i>Phytophthora</i> disease infection, but not including normal seasonal leaf drop in summer and early autumn).

The triggers for investigation with regard to 'drainage disturbance impacts' are:

- If TEC vegetation is inundated or flooded for 24 hours as a result of project activities.
- Evidence of new erosion in monitored TEC vegetation.
- TEC vegetation health declined relative to reference sites.

2.8 Comparative analysis

Comparative analysis of data occurs on two bases: between different monitoring rounds for the same sites, and between Potential Impact and Reference sites of the same community type. The analysis considers changes with regard to absolute number (e.g., number of species) and category score (e.g., cover or stress rating)

While it is not considered likely that statistical analysis will be required to detect changes reaching either specified trigger or threshold levels (BORR Team 2020, Main Roads 2022), where warranted, a paired t-test or repeated measures ANOVA may be used, noting that, due to differences in some vegetation characteristics between Potential Impact and Reference sites, and the relatively low number of sites, the tests would have a low "power" to detect a fundamental difference between the two means.

A change is potentially significant and worthy of further investigation when there is a negative variation in the result for any measured variable, in particular for dominant vegetation structure, vegetation condition, weed cover, native diversity and cover at anyone monitoring point. For example, a change worthy of investigation may include:

- Vegetation structure: A Banksia Low Woodland changing to a Banksia Open Low Woodland
- Vegetation condition: Good condition vegetation changing to Degraded condition vegetation
- Weed cover: <2% weed cover changing to 2-10% weed cover
- Native cover: 30-70% native cover changing to 10-30% native cover and
- Plant Stress: trees / largest shrubs within the survey area changing by one grade point, for example, from a 5 to a 4.

These changes are compared against reference sites of the same vegetation type, or data from previous rounds at the same site, to determine whether the change is the result of project-attributable impacts, or other, more regional-scale impacts, such as drought.

Where possible, site averages have been determined using field data. This was possible for three of the measured variables, weed cover, native cover and plant stress. For these parameters, the mid-point of the category range was used as the representative value as shown in **Table 8**, **Table 9** and **Table 10**. Vegetation condition could not be averaged because its determination is not based on a numerical assessment.

Where appropriate, the results of comparisons are shown in graphs that have bars showing the 20% threshold, which, if exceeded, presents a potential reportable decline.

Table 8. Mid-point category score for weed cover.

Weed cover	Category score mid-point %
<2%	1
2-10%	4
11-30%	20
31-70%	50
>70%	85

Table 9. Mid-point category score for native cover.

Native cover	Category score mid-point %
<2%	1
2-10%	4
11-30%	20
31-70%	50
>70%	85

Table 10. Mid-point category score for plant stress.

Plant stress	Category score mid-point %
>81%	90
61-80%	70
41-60%	50
21-40%	30
<20%	10

2.9 Reportable decline

The Vegetation Monitoring Plan (BORR Team 2020) submitted as part of the State environmental approval defines a change or decline considered to be a reportable decline as ‘where monitoring shows a 20% decline in the species composition and/or health/stress attributes of the TEC / PEC potential impact sites against the change at reference sites’.

The process for determining whether a reportable decline has occurred is outlined chronologically in the following steps:

1. Determine whether a significant change/decline has occurred
2. If yes, determine whether the significant change/decline is project attributable
3. If yes, then a reportable decline has occurred.

For monitoring, it is understood that reportable declines are to be relative to baseline levels across a site or to reference-site data. The baseline levels for this project, reported in Ecoedge (2023), are based on TEC PEC monitoring data collected from spring 2019 to winter 2022, before the project commenced in August 2022.

3 Personnel

The TEC PEC monitoring for the period May 31 2025 to May 31 2026, was conducted by Colin Spencer, lead botanist (flora permit FB62000169), Ben Eckermann, botanist (flora permit FB62000262), and quarterly drainage monitoring by Debbie Brace, ecologist (flora permit FB62000504).

4 Limitations

Limitations with regard to this reporting period are addressed in **Table 11**.

Table 11. Limitations of the field monitoring with regard to assessment adequacy and accuracy.

Aspect	Constraint	Comment
Proportion of flora identified	Minor	The spring transect monitoring was carried out from 14 October to 5 December 2026, covering the optimal time for identifying flora in the Bunbury region.
Climatic and seasonal effects	Minor	Slightly above average rainfall was experienced for the Bunbury Weather Station (No. 9965) for the 2025 May to September wet season, followed by about average rain for the balance of the monitoring period. This meant that spring flowering in general and germination of annuals were good, especially in the claypans. It also allowed some recovery of vegetation that had been subject to high water stress during the preceding summer and autumn drought.
Availability of contextual information	Not a constraint	Data and reports from numerous studies conducted on Swan Coastal Plain vegetation are available to provide context for the monitoring program.
Completeness of the survey	Not a constraint	All monitoring sites were accessible and could be easily assessed.
Skill and knowledge of the botanists	Minor	The lead botanist has ten years' experience in undertaking botanical surveys and over 20 years' experience in vegetation management on the Swan Coastal Plain.
Consistency of monitoring personnel	Minor	The lead botanist has participated in all vegetation monitoring episodes since the project commenced in spring 2019 and has ensured consistency in assessment of monitored parameters, including vegetation condition, plant stress and weed cover. However, it is acknowledged that some variation in assessment values due to the interpretation of field conditions between observers may occur.
Disturbance (fire, grazing, clearing etc.)	Moderate	The Banksia woodland area BW-S-PI-3 has been privately purchased and fenced. This means that assessments now have to be done over the fence, and Photopoints 1 and 2 at the site cannot be accessed. This will limit accurate monitoring of this site going forward.
Collection and storage of data	Minor	Data was collected and stored using various applications on electronic devices and pen/paper notebooks. A coordinated approach is required to prevent data loss or corruption.

5 Results

5.1 Weather

Rainfall and temperature statistics for the 2019 – May 2026 survey period, as compared to the 1995-2026 average for the Bunbury Weather Station (No.9965), are shown in Error! Reference source not found. and Error! Reference source not found.. This information provides context to observed changes or trends in vegetation that may arise from variations in weather, for example, from prolonged, unseasonal drought impacts reducing plant germination and increasing plant stress.

The statistics show that the mean temperature for the period between 2020 – May 2026 was higher than the mean temperature measured between 1995 and 2026 (BOM 2026) for five of the seven complete monitoring years (2019 – 2025), with a range of -0.3 – 1.5 degrees. 2024 was the warmest monitoring year, followed by 2025 and 2023. The average temperatures from February until May 31 for 2024 were the highest recorded since monitoring commenced and coincided with the driest summer to mid-autumn monitoring period Error! Reference source not found. and **Table 13**.

The ‘wet season’ (May to September) rainfall for Bunbury in 2025 of 626.2mm was above the long-term wet season average of 587 mm, **Figure 4**. This followed the good wet season rains in 2024, which was 272 mm above average for the wet season average. These above average rainfall years provided welcome relief to the lowest on record rainfall for the Bunbury region for the 9-month period from August 2023 to May 2024 **Figure 5**. (BOM 2024b) and the lowest soil moisture on record (based on all years since 1911) **Figure 6** and **Figure 7** (BOM 2024c).

Table 12. Rainfall (mm) statistics for 2019 till autumn 2026 for the Bunbury weather station No. 9965 (BOM 2026).

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan – Dec
2019	10.6	0	21.2	16.2	34.8	182	94.6	91.8	30	53.2	15.4	0.2	550
2020	1.2	12.4	35.2	23.6	114.4	152.2	129	65.6	88.2	23	3	5	652.8
2021	0.2	54.6	36.4	74.0	147.8	101.0	199.8	108.2	95.2	123.4	12.6	10.6	963.8
2022	0	2.8	8.6	61.6	111	110.4	226.2	132.8	70.2	30.6	18	0	772.2
2023	0.6	0	15.8	112	37	167.4	168.6	126.8	72.4	11.8	2.6	1	716.4
2024	0	0	0.4	0	177.4	171.8	232	237.8	40.6	44.8	22.6	4.8	932.2
2025	9.2	1.4	17	41	31.4	190	194	131	80	34.6	26	0	756
2026	3.2	0	70	32	51.6								
1995 - 2026	9.8	7.7	21	39	96.1	139	149	123	78	35.8	21	14	737

Table 13. Temperature C° statistics for 2019 till autumn 2026 for the Bunbury weather station No. 9965 (BOM 2026).

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan – Dec
2019	28.6	29.9	28.2	23.9	20.6	18.8	17.9	18.9	19.9	21.2	26.1	30.4	23.7
2020	28.9	30.6	27.7	24.2	20.1	19.6	18.1	17.6	19.4	22.6	22.6	29.3	23.4
2021	31.5	28.5	27.4	24.2	20.8	18.0	17.2	17.9	19.1	19.4	23.7	28.2	23
2022	31.7	31.4	28	24.2	20.9	18.1	17.7	17.2	19.3	19.9	24.1	28	23.4
2023	30.9	29.9	27.7	22.3	20.7	16.4	17.1	18.2	20.2	24	28.6	29.8	23.8
2024	30.7	32.8	28.9	26.7	23.2	18.8	18.1	18	20.2	22.3	24.6	29.8	24.5
2025	31.4	30.2	30.4	24.8	22.4	19.1	16.8	17.8	19.1	20.5	24.7	28.6	23.8
2026	30.3	30.9	28.5	22.6	20.5								
1995 - 2026	30	30.1	27.8	24.2	21	18.5	17.4	17.7	18.8	21.2	24.6	27.7	23.3

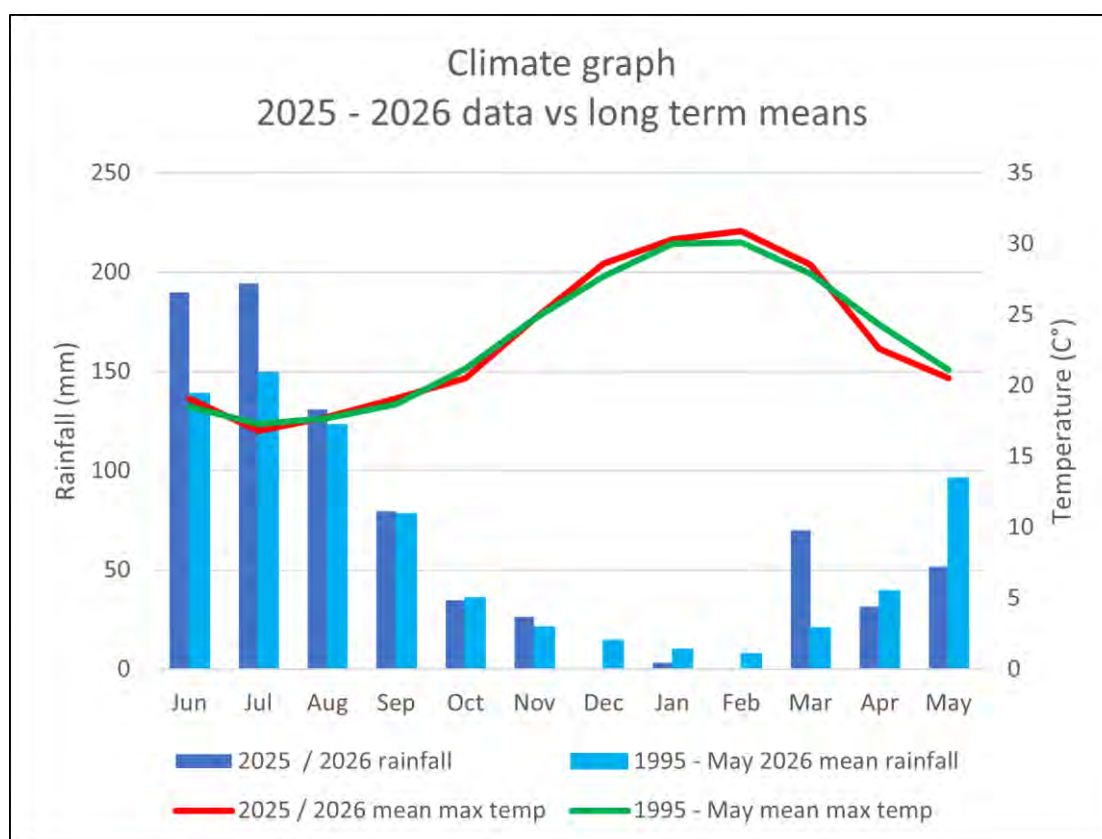


Figure 3. Comparison of the long term (1995 – May 2026) mean temperature and rainfall data and 2025 / 2026 data for the Bunbury weather station No. 9965 (BOM 2026).

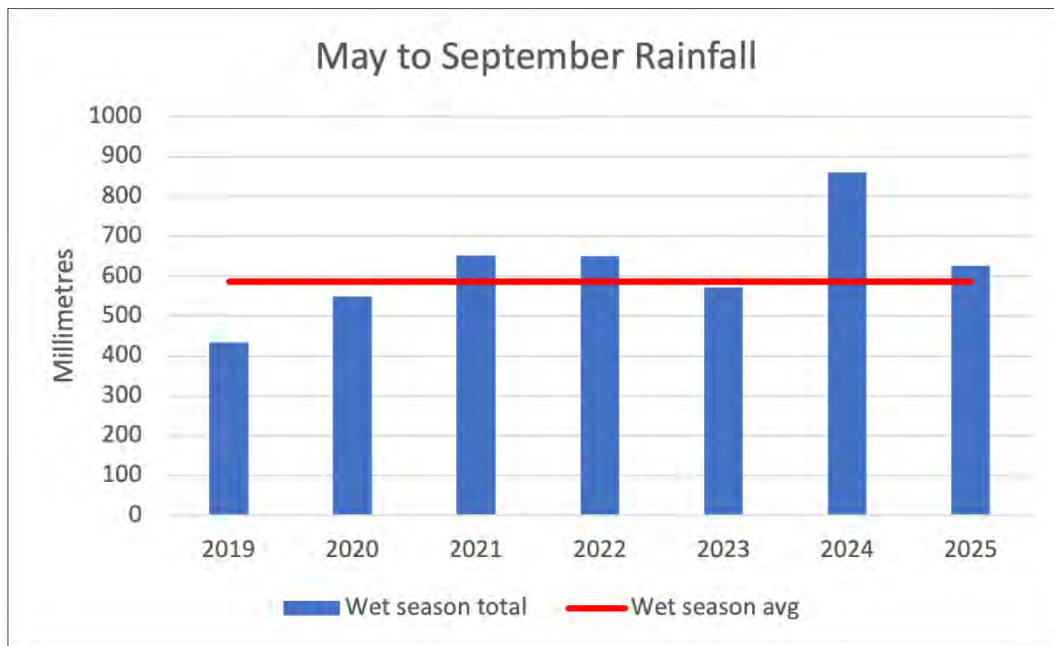


Figure 4. Long term and 2019 to 2025 mean wet season (May to September) rainfall for Bunbury weather station 9965 BOM (BOM 2025).

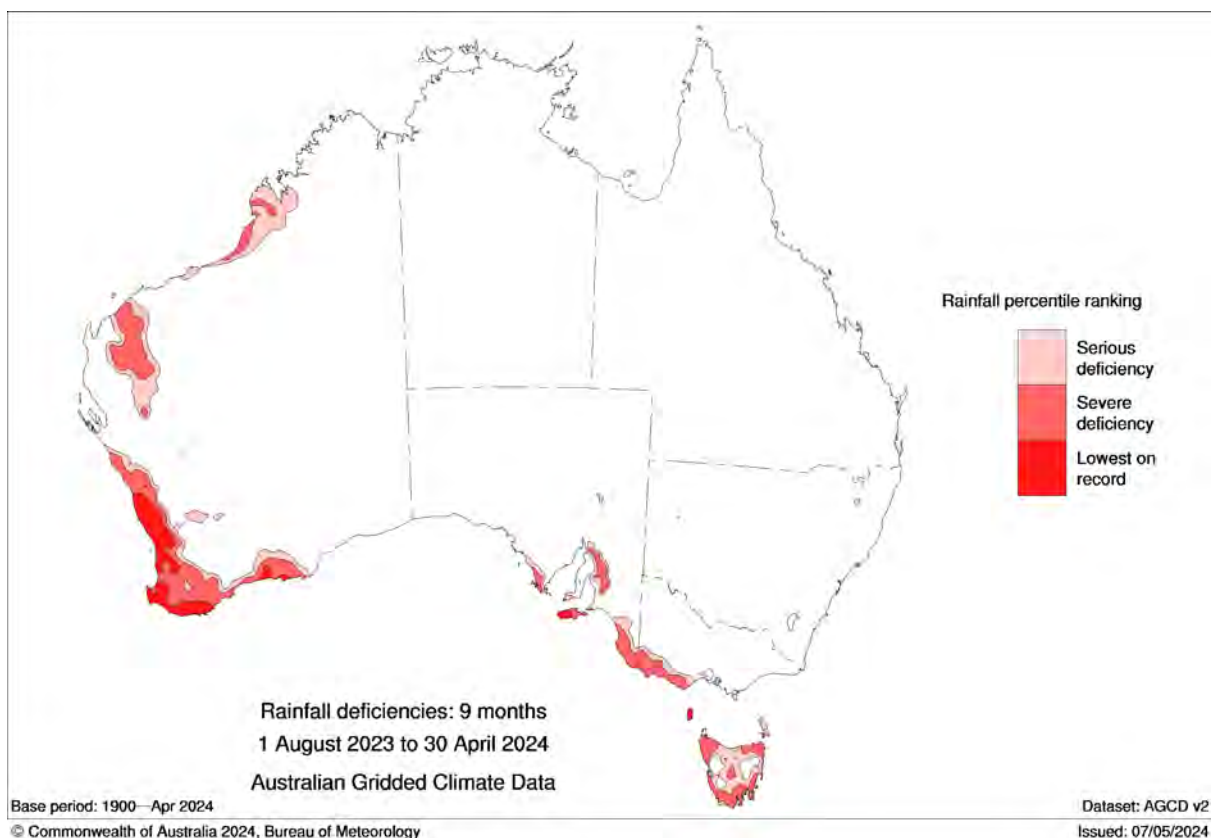


Figure 5. Rainfall deficiencies: 9 months 1 August 2023 to 30 April 2024. (BOM 2024a, used with permission – Creative Commons, CC- BY).

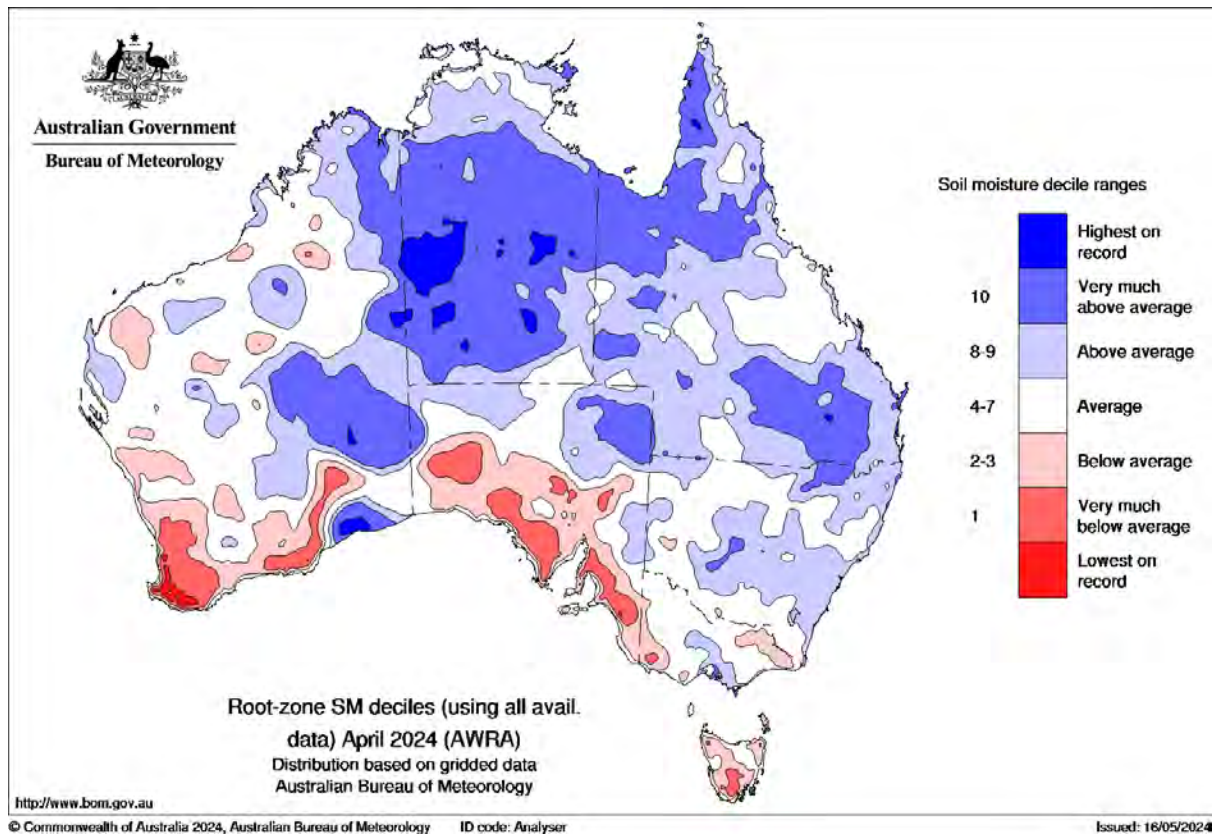


Figure 6. Root zone soil moisture for April 2024 (BOM 2024b, used with permission – Creative Commons, CC- BY).

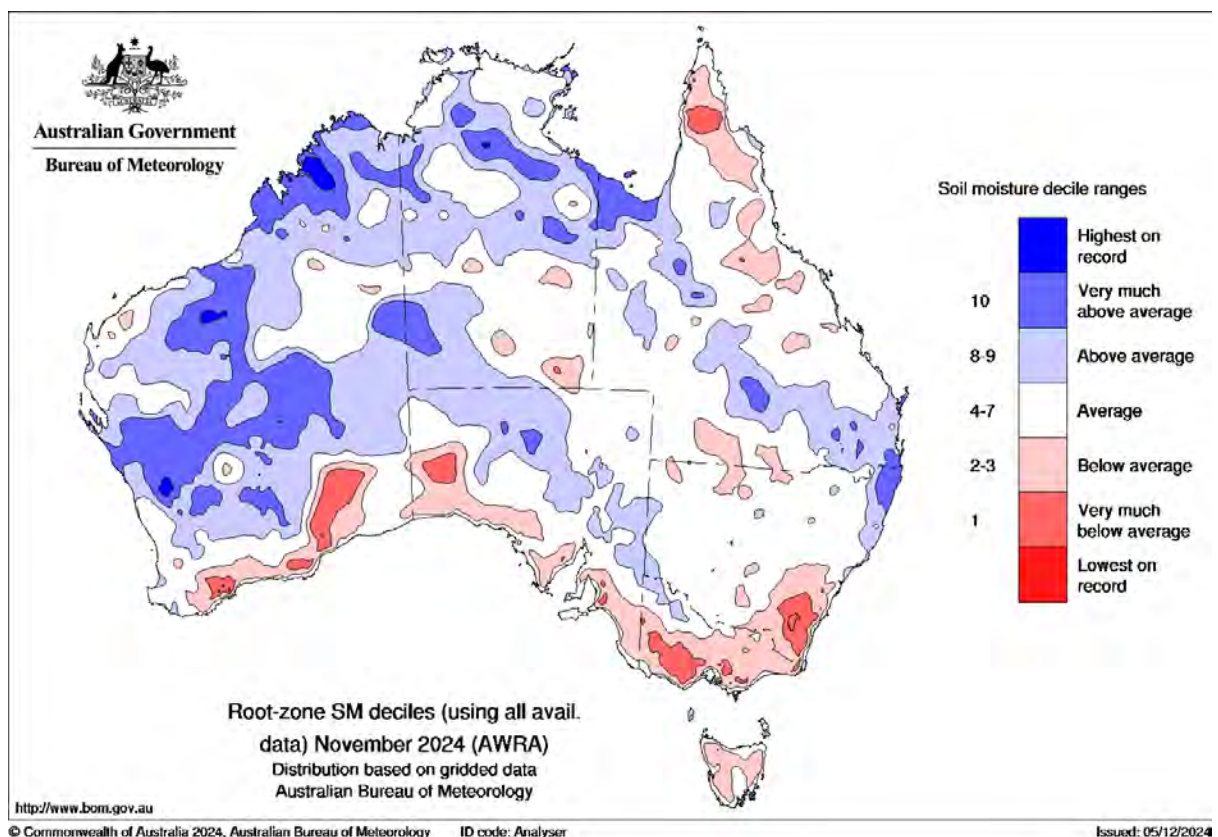


Figure 7. Root zone soil moisture for Nov 2024 (BOM 2024c, used with permission – Creative Commons, CC- BY).

5.2 Potential impact and reference site vegetation descriptions

A description of the modal vegetation for each monitoring site based on the dominant vegetation identified within each structural layer is presented in **Table 14**. These descriptions are based on vegetation assessments at each photopoint across the monitoring site. A total of six Banksia Woodlands, two Banksia Tuart Woodlands, three clay pans and three Tuart Woodland sites were monitored.

Table 14. Vegetation descriptions for current monitoring sites

Site Name	Vegetation description Autumn 2023
BW-S-PI-1	<i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> Open Woodland over <i>Banksia attenuata</i> , <i>Agonis flexuosa</i> , <i>Xylomelum occidentale</i> , <i>Banksia grandis</i> Low Open Woodland over <i>Kunzea glabrescens</i> Tall Open Shrubland over <i>Jacksonia sternbergiana</i> , <i>Acacia extensa</i> , <i>Stirlingia latifolia brunonis</i> Open Shrubland over <i>Xanthorrhoea brunonis</i> , <i>Hibbertia hypericoides</i> and <i>Macrozamia riedlei</i> Low Open Shrubland over <i>Lomandra micrantha</i> , <i>Phlebocarya ciliata</i> Very Open Herbland and <i>*Ehrharta calycina</i> , <i>*Briza maxima</i> Very Open Grassland and <i>Lepidosperma squamatum</i> and <i>Hypolaena exsulca</i> Very Open Sedgeland.
BW-S-PI-3	<i>Eucalyptus marginata</i> Open Woodland over <i>Banksia attenuata</i> <i>Banksia ilicifolia</i> , <i>Xylomelum occidentale</i> Low Open Woodland over <i>Kunzea glabrescens</i> Tall Open Shrubland over <i>Macrozamia riedlei</i> , <i>Stirlingia latifolia</i> Open Shrubland over <i>Hibbertia hypericoides</i> , <i>Melaleuca thymoides</i> , <i>Acacia pulchella</i> Low Shrubland over <i>Phlebocarya ciliata</i> <i>Dasypogon bromeliifolius</i> Very Open Herbland over <i>Lepidosperma pubisquameum</i> Very Open Sedgeland and <i>*Ehrharta calycina</i> Very Open Grassland.
BW-S-PI-4	<i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> Woodland <i>Corymbia calophylla</i> , <i>Banksia attenuata</i> , <i>Banksia grandis</i> , <i>Xylomelum occidentale</i> Low Open Woodland <i>Kunzea glabrescens</i> , <i>Persoonia longifolia</i> Tall Open Shrubland over <i>Hibbertia hypericoides</i> , <i>Acacia pulchella</i> , <i>Dasypogon bromeliifolius</i> , <i>Opercularia hispidula</i> Low Shrubland <i>Phlebocarya ciliata</i> , <i>Lomandra micrantha</i> Open Herbland <i>Lepidosperma squamatum</i> , <i>Lyginia imberbis</i> , <i>Lepidosperma pubisquameum</i> Open Sedgeland
BW-S-PI-5	<i>Eucalyptus marginata</i> and <i>Corymbia calophylla</i> Open Woodland over <i>Banksia attenuata</i> , <i>Xylomelum occidentale</i> , <i>Banksia grandis</i> Low Open Forest over <i>Hibbertia hypericoides</i> , <i>Xanthorrhoea brunonis</i> and <i>Macrozamia riedlei</i> Low shrubland over <i>Phlebocarya ciliata</i> , <i>Conostylis aculeata</i> , <i>Burchardia congesta</i> , <i>Orthrosanthus laxus</i> Very Open Herbland <i>*Ehrharta calycina</i> , <i>*Briza maxima</i> Very Open Grassland and <i>Lepidosperma squamatum</i> , <i>Lepidosperma pubisquameum</i> and <i>Hypolaena exsulca</i> Very Open Sedgeland.
BW-S-PI-8	<i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> Open Woodland over <i>Agonis flexuosa</i> , <i>Banksia attenuata</i> , <i>Banksia grandis</i> and <i>Xylomelum occidentale</i> Low Open Forest over <i>Spyridium globulosum</i> , <i>Jacksonia horrida</i> , <i>Acacia cochlearis</i> , <i>*Acacia iteaphylla</i> Open Shrubland over <i>Hibbertia hypericoides</i> , <i>Macrozamia riedlei</i> , <i>Xanthorrhoea brunonis</i> , <i>Phyllanthus calycinus</i> and <i>Styphelia racemulosa</i> Low Shrubland to Open Low Heath over <i>Dichopogon capillipes</i> , <i>Lagenophora huegelii</i> , <i>Lomandra micrantha</i> , <i>Orthrosanthus laxus</i> and <i>*Hypochaeris glabra</i> Open Herbland over <i>*Briza maxima</i> , <i>*Ehrharta calycina</i> Open Grass land and <i>Morelotia octandra</i> and <i>Lepidosperma squamatum</i> Very Open Sedgeland.
BTW-S-R-1	<i>Eucalyptus gomphocephala</i> , <i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> Open Woodland over <i>Banksia attenuata</i> , <i>Xylomelum occidentale</i> Low Woodland over <i>Macrozamia riedlei</i> , <i>Xanthorrhoea brunonis</i> Open Shrubland over <i>Hibbertia hypericoides</i> , <i>Phyllanthus calycinus</i> Low Shrubland over <i>Lomandra caespitosa</i> , <i>*Ursinia anthemoides</i> Open Herbland over <i>*Briza maxima</i> Very Open Herbland.
BTW-S-R-2	<i>Eucalyptus gomphocephala</i> Open Woodland over <i>Agonis flexuosa</i> , <i>Banksia grandis</i> Low Woodland over <i>Spyridium globulosum</i> Tall Open Shrubland over <i>Macrozamia riedlei</i> Open Shrubland over <i>Hibbertia hypericoides</i> Very Open Shrubland over <i>Orthrosanthus laxus</i> , <i>Phlebocarya ciliata</i> Open Herbland, <i>Morelotia octandra</i> , <i>Lepidosperma squamatum</i> Very Open Sedgeland and <i>*Briza maxima</i> Very Open Grassland.

Site Name	Vegetation description Autumn 2023
BW-S-R-1	<i>Eucalyptus marginata</i> Open Woodland over <i>Banksia attenuata</i> , <i>Eucalyptus marginata</i> Low Woodland over <i>Kunzea glabrescens</i> Tall Shrubland over <i>Hibbertia hypericoides</i> , <i>Calytrix flavescens</i> , <i>Gompholobium tomentosum</i> , <i>Bossiaea eriocarpa</i> Low Shrubland over <i>Lepidosperma squamatum</i> Very Open Sedgeland.
CP-S-PI-1	<i>Eucalyptus marginata</i> , <i>Corymbia calophylla</i> Open Woodland over <i>Banksia attenuata</i> , <i>Banksia grandis</i> , <i>Banksia ilicifolia</i> Low Open Woodland over <i>Macrozamia riedlei</i> Open Shrubland over <i>Macrozamia riedlei</i> , <i>Hibbertia hypericoides</i> , <i>Xanthorrhoea brunonis</i> Low Shrubland over <i>Lomandra micrantha</i> , <i>Conostylis aculeata</i> , <i>Burchardia congesta</i> Very Open Herbland over <i>Lepidosperma squamatum</i> Very Open Sedgeland and <i>*Briza maxima</i> , <i>*Ehrharta calycina</i> Open Grassland.
CP-NS-R-1	<i>Corymbia calophylla</i> , <i>Eucalyptus rudis</i> Open Woodland over <i>Melaleuca raphiophylla</i> , <i>Acacia saligna</i> Low Open Woodland over <i>Viminaria juncea</i> Tall Shrubland over <i>Xanthorrhoea preissii</i> , <i>Hakea varia</i> Shrubland over <i>Hakea varia</i> , <i>Grevillea bipinnatifida</i> , <i>Hypocalymma angustifolia</i> Low Open Shrubland over <i>*Babiana angustifolia</i> Open Herbland over <i>Mesomelaena tetragona</i> , <i>Morelotia octandra</i> , <i>Cyathochaeta avenacea</i> Open Sedgeland.
CP-NS-R-2	<i>Melaleuca viminea</i> Tall Shrubland over <i>Blennospora doliiformis</i> , <i>Centrolepis aristatus</i> , <i>*Bartsia viscosa</i> Herbland.
TW-S-PI-2	<i>Eucalyptus gomphocephala</i> Open Woodland over <i>Banksia attenuata</i> , <i>Agonis flexuosa</i> , <i>Xylomelum occidentale</i> Low Woodland over <i>Spyridium globulosum</i> Tall Open Shrubland over <i>Hibbertia hypericoides</i> , <i>Xanthorrhoea brunonis</i> and <i>Macrozamia riedlei</i> Low Shrubland over <i>Orthrosanthus laxus</i> , <i>Dichopogon capillipes</i> , <i>*Ursinia anthemoides</i> Very Open Herbland and <i>*Briza maxima</i> , <i>*Avena barbata</i> , <i>*Ehrharta calycina</i> Open Grassland and <i>Lepidosperma squamatum</i> Very Open Sedgeland.
TW-S-PI-3	<i>Eucalyptus gomphocephala</i> , <i>Corymbia calophylla</i> and <i>Eucalyptus marginata</i> Woodland over <i>Agonis flexuosa</i> and <i>Banksia attenuata</i> Low Woodland over <i>Jacksonia furcellata</i> and <i>Daviesia divaricata</i> Open Shrubland over <i>Xanthorrhoea brunonis</i> and <i>Macrozamia riedlei</i> Very Open Shrubland over <i>Lomandra micrantha</i> , <i>Conostylis aculeata</i> var. <i>preissii</i> Very Open Herbland and <i>Ehrharta calycina</i> Open Grassland.
TW-S-PI-4	<i>Eucalyptus gomphocephala</i> , <i>Eucalyptus marginata</i> Woodland over <i>Agonis flexuosa</i> , <i>Banksia attenuata</i> , <i>Banksia grandis</i> Low Woodland over <i>Xanthorrhoea brunonis</i> Very Open Shrubland <i>Lomandra suaveolens</i> , <i>Lomandra micrantha</i> , <i>Conostylis aculeata</i> var. <i>preissii</i> , <i>*Anagallis sp.</i> , <i>Oxalis pes-caprae</i> Open Herbland <i>Briza maxima</i> <i>Ehrharta calycina</i> Open Grassland.

* Denotes introduced species.

6 Comparison of potential impact and reference site transect monitoring sites

Graphs showing the comparative trends in data collected in spring at the transects between potential impact sites and reference sites for each TEC PEC type are presented below, **Figure 8** for banksia woodland sites, **Figure 9** for claypan sites, Error! Reference source not found. for Corymbia woodland sites and **Figure 11** showing average stress for all TEC/PEC sites monitored.

The variables analysed for transects include:

1. Total number of taxa (within the four quadrats along a transect)
2. Number of native taxa (includes annual and perennial herbs)
3. Number of native orchid taxa
4. Number of weed (non-locally-native) taxa
5. Mean weed cover score
6. Mean stress score (shrubs).

These variables were chosen because they integrate vegetation conservation values at each of the sites and provide important information about vegetation health (e.g., stress score) and vegetation integrity (e.g., weed cover).

The trends in these variables are analysed, and an assessment is made with regard to the need to make a Reportable Decline with respect to project attributable indirect impacts.

Data collected for each transect and monitoring site during the 2019 to 2025 spring survey are provided in **Appendix 3**.

Twenty percent standard error bars are shown, where practically possible, on each graph for the 2021 survey season in order to provide a baseline reference point. This point is 'imperfect' as some monitoring was completed in autumn and winter 2022 prior to the commencement of the project in August 2022, but it serves as a conservative point from which to make visual comparisons.

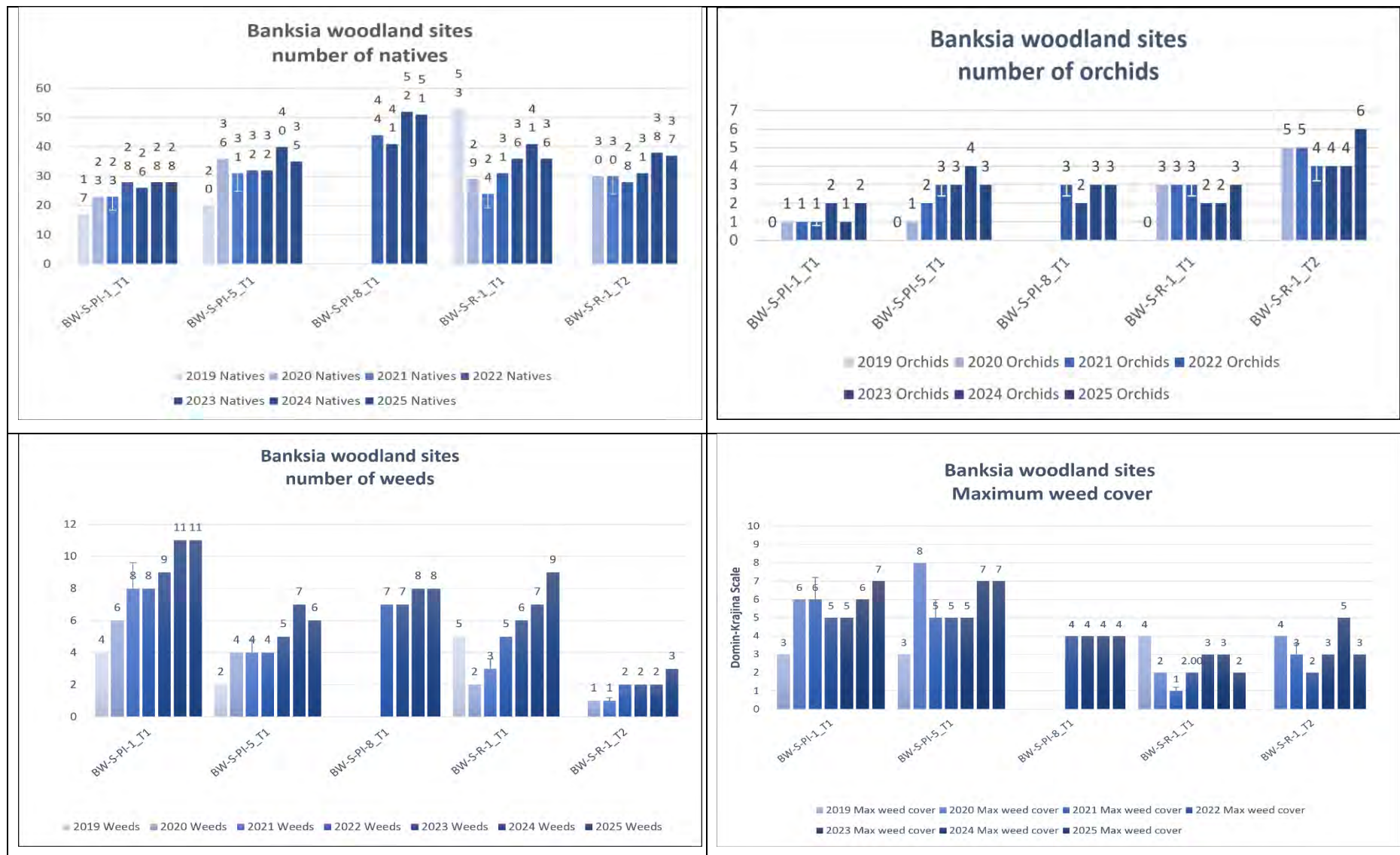


Figure 8. Banksia woodland transect graphs showing comparative data for potential impact sites and reference sites for weeds, native species and orchids.

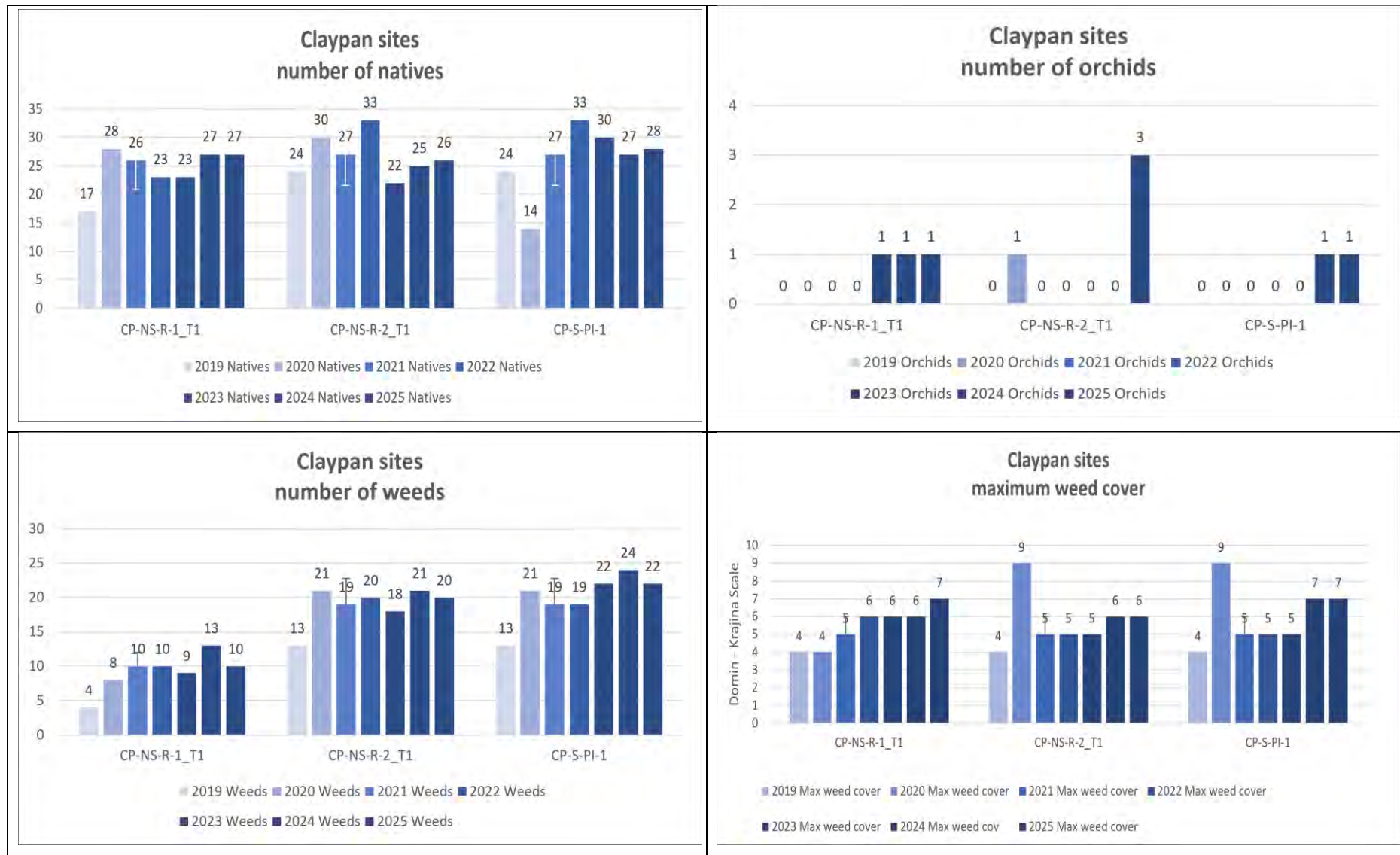


Figure 9. Claypan transect graphs showing comparative data for potential impact sites and reference sites for weeds, native species and orchids.

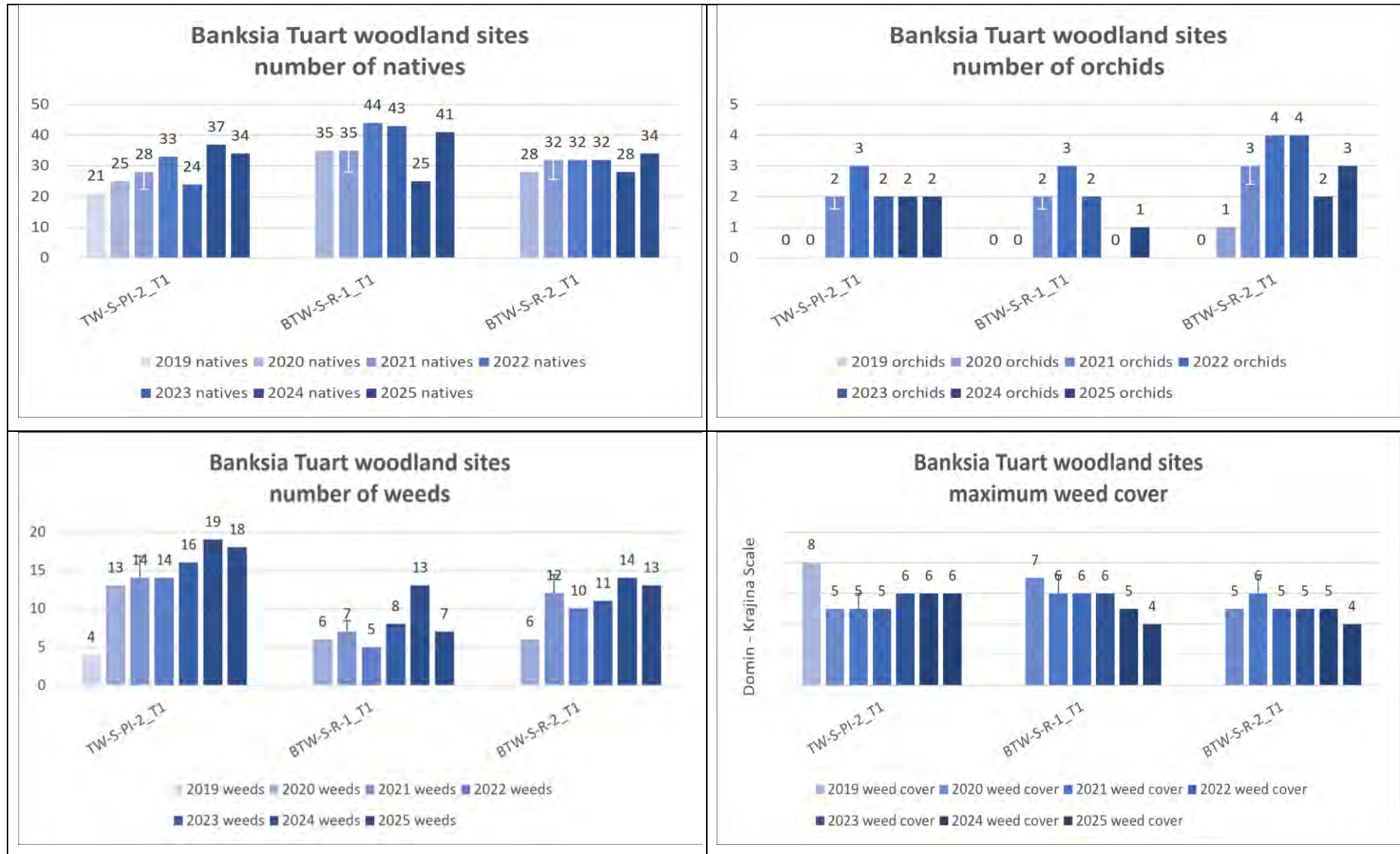


Figure 10. Banksia Tuart woodland transect graphs showing comparative data for potential impact sites and reference sites for weeds, native species and orchids.

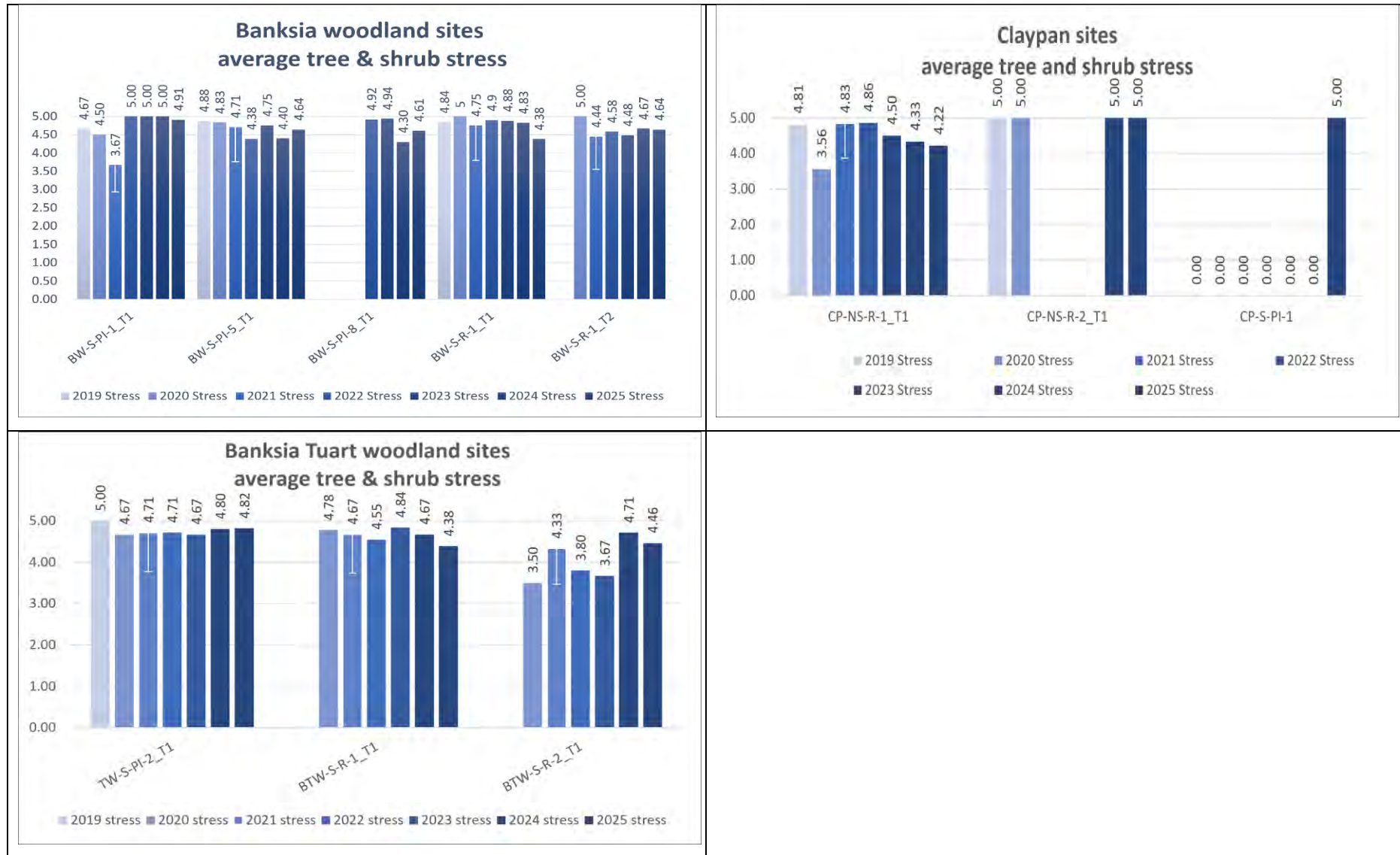


Figure 11. Graphs showing comparative data for potential impact sites and reference sites for average tree and shrub stress in Banksia woodland, Claypan and Banksia Tuart woodland TEC PEC sites.

6.1 Weeds

6.1.1 Banksia woodlands

Weed diversity has increased at all three Banksia woodland potential impact sites by up to three species relative to the spring 2021 baseline levels. Weeds also increased at both reference sites, with an increase of six species at BW-S-R-1_T1. Maximum weed cover increased for two of the potential impact sites BW-S-PI-1_T1, 25 – 33% to 33 - 50% and BW-S-P-5_T1 from 10 – 25% to 33 - 50% and was stable at 5 - 10% for BW-S-PI-8_T1 relative to baseline conditions. Weed cover also increased at both the reference sites, but the weed loads at these sites were overall lower than at the potential impact sites. The increases in weed cover were observed in most weed species within the quadrats.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts with regards to weeds for Banksia woodland potential impact TEC sites, because the increases were experienced in both potential impact and reference sites and were of a comparable magnitude. Furthermore, the increase in weed diversity is attributed to colonisation of weeds from immediately adjacent bushland and not from the nearby BORR project area.

6.1.2 Claypans

The levels of weed diversity increased by three species at the one claypan potential impact site CP-S-PI-1_T1 relative to baseline levels, with an increase in maximum weed cover from 10 – 25% to 33 – 50 %. There was a minor increase of one species at CP-NS-R-2_T1 whilst the diversity remained unchanged at 10 species at CP-NS-R-1_T1 relative to baseline levels. Both reference sites experienced an increase in maximum weed cover, with the same level of increase in maximum weed cover at CP-S-PI-1_T1 recorded at the reference site CP-NS-R-1_T1 (**Figure 9**).

Project attributable indirect impacts and/or reportable decline: There are no project attributable indirect impacts regarding weeds for Claypan potential impact sites CP-S-PI-1_T1 because the increases were experienced in both potential impact and reference sites and were of a comparable magnitude.

6.1.3 Tuart woodlands

The levels of weed diversity within the single Tuart woodland potential impact site TW-S-PI-2_T1 has increased by four species compared with baseline levels. Both reference sites have also experienced increases in weed diversity over the duration of the monitoring period, with BTW-S-R-1_T1 experiencing the largest increase of six species in 2024. This was like Potential impact site TW-S-PI-2_T1 which increased by five weeds. However, the diversity of weeds at BTW-S-R-1_T1 decreased by six species to base line levels in 2025, whereas the potential impact site only decreased by one species. This decrease was similar to the other reference site BTW-S-R-1_T2.

The larger variations are attributed to variable germination in small annual weeds.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts with regards to weed diversity, as the increase at TW-S-PI-2 was comparable to the reference site BTW-S-R-1_T1. It is also considered that these increases are attributed to increases in existing annually renewed weeds present within and adjacent to the site rather than from BORR-related activities, which are located approximately 50 m from the monitoring transect.

6.2 Native diversity

6.2.1 Banksia woodlands

The diversity within the three Banksia woodland potential impact sites has overall increased at all three potential impact sites relative to baseline levels, with the largest increase generally occurring in the spring 2024 monitoring period. This pattern was reflected in the reference sites. The overall increasing trend comprised small fluctuations (minor increases and decreases) in the diversity. The fluctuations are attributed to variations in the diversity of small annual herbs, in particular species of the *Isolepis*, *Centrolepis* and *Hydrocotyle* and annually renewed geophytes such as orchids and droseras together with new seedlings which are more prevalent in higher rainfall years such as 2024.

Noting that the 53 species recorded in 2019 for BW-S-R-1_T1 appear to be an anomaly, most likely due to a recording error, with levels between 30 and 40 species better reflecting the site's diversity.

Orchid diversity at the Banksia woodland potential impact sites has remained relatively stable, with similar levels recorded at BW-S-PI-5_T1 and BW-S-PI-8_T1, and an increase in one species at BW-S-R-1_T1 relative to baseline levels.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts with regards to native diversity for the Banksia woodland potential impact sites as all sites have increased in diversity from baseline monitoring levels.

6.2.2 Claypans

The diversity of natives at Potential Impact site CP-S-PI-1_T1 has increased by one species relative to baseline levels. This increase in one species was also experienced at CP-NS-R-1. Interestingly all three sites have had a comparable diversity of between 26 – 28 species for the baseline year 2021 and 2024 and 2025. The species composition and trends in diversity are generally similar for CP-S-PI-1 and CP-NS-R-2 because of their relatively close proximity to one another but are dissimilar for CP-NS-R-1 which is located away from these sites.

2024 saw the first occurrence of an orchid (*Eriochilus dilatatus* – leaf only) within the potential impact site since monitoring commenced. This was recorded again in 2025.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts with regards to native diversity for the Claypan potential impact sites because there was no decrease in native diversity, including orchid diversity, compared to baseline levels.

6.2.3 Tuart woodlands

The diversity of natives in the one Tuart woodland potential impact transect site TW-S-PI-2_T1 has increased in diversity by six species relative to baseline levels from 28 to 34 species. This increase is like that observed at BTW-S-R-1_T1. An increase in diversity of two species was recorded at BTW-S-R-2_T1.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts with regards to native diversity for the single Tuart woodland potential impact site as the diversity of native species within the site has increased relative to baseline levels.

6.3 Shrub and tree stress

6.3.1 Banksia woodlands

Relatively minor increases in stress (less than 20%) were observed at two of the potential impact monitoring transects relative to baseline levels, at BW-S-PI-5 and BW-S-PI-8. These increases were recorded in 2024 and generally reflect the poor condition of the low shrub *Hibbertia hypericoides* and *Acacia pulchella* following the record summer and autumn drought experienced in 2023/2024. Small reductions in overall stress in these sites were recorded in 2025 as the health of both the *Acacia pulchella* and *Hibbertia hypericoides* improved following two reasonable wet seasons. A minor increase in stress was also recorded at BW-S-R-1_T1; this was attributed to the residual impacts of the 23/24 drought with a few plants, mainly *Hibbertia hypericoides*, experiencing further deterioration at the site.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts with regards to plant stress for the Banksia woodland potential impact sites because the increases in stress were minor, less than 20% and of a comparable magnitude to that experienced at the reference sites.

6.3.2 Claypans

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts with regard to stress in trees or shrubs for the monitored claypan potential impact site CP-S-PI-1 because almost all plants are annual or semi-perennial herbs that die or die back soon after the end of the rainy season. The 2025 monitoring period recorded the first occurrence of perennial shrub – *Dampiera pedunculata*, which was unstressed and in good condition.

Tuart woodlands¹²

The average stress level within the single potential impact monitoring site TW-S-PI-2_T1 has remained generally stable since 2020. This is comparable to stress levels at the reference site

¹² The Tuart potential impact transect sites are compared with Banksia Tuart woodland transect reference sites due to the absence of transect reference sites within just Tuart woodland.

BTW-S-R-1_T1, which has also been generally stable but experienced a slight increase in autumn 2025. This was due to increased stress in a single *Xanthorrhoea brunonis*.

By contrast, overall stress levels were reduced at the reference site BTW-S-R-1_T2 relative to baseline levels. The stress at this site is mostly due to the poor condition of *Macrozamia riedlei*. A substantive improvement in the condition of one of the plants led to a reduction in overall stress at this site in 2024. This is perhaps due to the 28% above average rainfall in 2024; see section 5.1.

Project attributable indirect impacts and/or reportable decline: There are no project attributable indirect impacts regarding plant stress for the monitored Tuart woodland potential impact site TW-S-PI-2_T1 because stress levels have remained practically stable relative to baseline levels.

6.3.3 Plant deaths

Plant deaths for all perennial shrubs and trees have been recorded within potential impact and reference site transects since monitoring commenced in 2019, with deaths recorded for the first time in 2024. These were observed in the low shrub *Hibbertia hypericoides* in four quadrats within the two sites, BW-S-PI-5 and BW-S-PI-8. Widespread stress in *Hibbertia hypericoides* was observed outside of the monitoring quadrats at these sites, and the primary cause of reported stress in the transects at these sites. These deaths are attributed to the record summer and autumn drought experienced in 23/24. Monitoring in 25/26 showed no further deaths or increases in stress observed in *H. hypericoides*, but the effects of the 23/24 drought were still evident in the plants, with many half dead per **Plate 1**.



Plate 1. *Hibbertia hypericoides* in spring 2025 (BW-S-PI-5), showing relictual evidence of the 23/24 drought.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts with regard to plant deaths to date, including the 25/26 monitoring round within the monitoring quadrats. All observed deaths of *Hibbertia hypericoides* within the monitoring sites BW-S-PI-5 and BW-S-PI-8 were attributed to the record-breaking summer and autumn drought in 23/24. No further deaths were observed during the 25/26 monitoring period.

7 Comparison of biannual photopoints

7.1 Vegetation structure

There were no significant changes in dominant species or vegetation structure at any of the 108 photopoints monitored between autumn 2026 and the commencement of monitoring in spring 2019. This means that there was no change in the overall vegetation descriptions for the monitoring sites.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts and therefore any potentially reportable declines with regards to vegetation structure at any of the monitored TEC and PEC community types relative to baseline levels.

7.2 Vegetation condition

There have been six changes in vegetation condition out of the 125 monitoring points between the 2019 and 2026 autumn monitoring rounds for all monitored Banksia woodland, Claypan and Tuart woodland PEC/TEC occurrences. These were all recorded in the Banksia woodland community at four sites, BW-S-PI-1 (T1W), BW-S-PI-3 (P05), BW-S-PI-4 (P02) and BW-S-PI-5 (P04, P09 and P28) (**Table 15**). The greatest potential for a downgrading of vegetation condition is within marginally Excellent condition monitoring points due to the invasion of aggressive weeds and the modification of vegetation structure, which can be caused by a range of factors such as repeated fire, phytophthora dieback and grazing. This was the case for only downgrading of condition for the 25/26 monitoring period, which occurred at BW-S-PI-5_P28 with the relatively recent colonisation of two aggressive weeds, *oxalis pes-caprae* and *Freesia alba x leichtlinii*. Both these weeds present nearby and were not introduced from BORR related activities (**Plate 2**).

The comparative data for vegetation condition recorded at the boundary photopoint sites are presented in **Appendix 3**.



Plate 2. BW-S-PI-5_P28 with *Freesia* and *Oxalis pes-caprae* colonising the site.

Table 15. Monitoring points with changed vegetation condition.

Monitoring point	Season	Condition change	Reason
BW-S-PI-1 (T1W),	Spring 2024	VG - G	Weeds, have increased, and some understory plants are dead, notably <i>Phlebocarya ciliata</i> , due to drought-induced changes in site diversity.
BW-S-PI-3 (P05)	Autumn 2024	Ex - VG	Declined from Ex to VG because the canopy structure is significantly altered with most trees (<i>Banksia attenuata</i> and Jarrah trees dead) / very stressed from a combination of drought, fire, phytophthora dieback(?), borer and cockatoo damage.
BW-S-PI-4 (P02)	Spring 2022	Ex - VG	Establishment of <i>Acacia longifolia</i> observed in autumn 22, aggressively competing with mid and understorey native species.
BW-S-PI-5 (P04)	Spring 2022	Ex - VG	Spread and increase of weeds, in particular <i>Briza maxima</i> .
BW-S-PI-5 (P09).	Autumn 2025	G - D	Spread and increase of weeds, in particular grass weeds, Bridal creeper and <i>Opuntia stricta</i> occur at this site
BW-S-PI-5 (P28)	Autumn 2026	Ex - VG	Two weeds, <i>Oxalis pes-caprae</i> and <i>Freesia alba</i> x <i>leichtlinii</i> have colonised and increased at the site such that now it can no longer be Excellent.

Ex = Excellent, VG = Very Good, G = Good, D=Degraded.

Project attributable indirect impacts and or reportable decline:

The observed decline in vegetation condition at one monitoring point, BW-S-PI-5_P28, for the 25/26 monitoring is not attributable to BORR project activities. This downgrading is due to colonisation of existing weeds and not due to BORR related activities. The site is approximately 30 m from the road alignment, and no works were undertaken on this section of the road.

The reasons for the other five pre 25/26 monitoring round downgrading were due to a combination of increased weed loads from weed infestations already present at the site and due to reductions in native diversity due to plant death caused by the record-breaking 2024 autumn drought, historic fire, phytophthora dieback (possible), borer and cockatoo damage.

7.3 Weed cover

Weeds cover increased at nine of the 15 sites actively monitored¹³ during the baseline monitoring period, spring 2019 to Autumn 2026 (**Table 16**) and **Figure 12**. The increases affected all vegetation types, Banksia woodland, Tuart woodland and Claypans, and were evident in potential impact and reference sites. This increase is likely due to the increases in annual rainfall and compounding increases in weed seed set over the monitoring period.

These increases within each of the community types is investigated below in further detail.

A full set of comparative results for weed cover is available in **Appendix 3**.

Table 16. Number of monitoring points with a change (increase) in weed during the baseline monitoring period per monitoring site.

Site type	Site	Number of points with a change in weed cover*
Potential impact sites	BW-S-PI-1	6 (7)
	BW-S-PI-3	5 (7)
	BW-S-PI-4	3 (4)
	BW-S-PI-5	12 (37)
	BW-S-PI-8	First monitored in winter 2022
	CP-S-PI-1	2 (5)
	TW-S-PI-2	6 (11) an additional 11 sites were added in winter 2022
	TW-S-PI-3	0 (4)
	TW-S-PI-4	1 (3)
Reference sites	BW-S-R-1	0 (4)
	BTW-S-R-1	2 (2)
	BTW-S-R-2	2 (2)
	CP-NS-R-1	1 (2)
	CP-NS-R-2	1 (2)

* The number in the brackets is the total number of monitoring points at a monitoring site.

¹³ BW-S-PI-8 was only monitored for the first time in Winter 2022, as this is in the clearing exclusion zone.

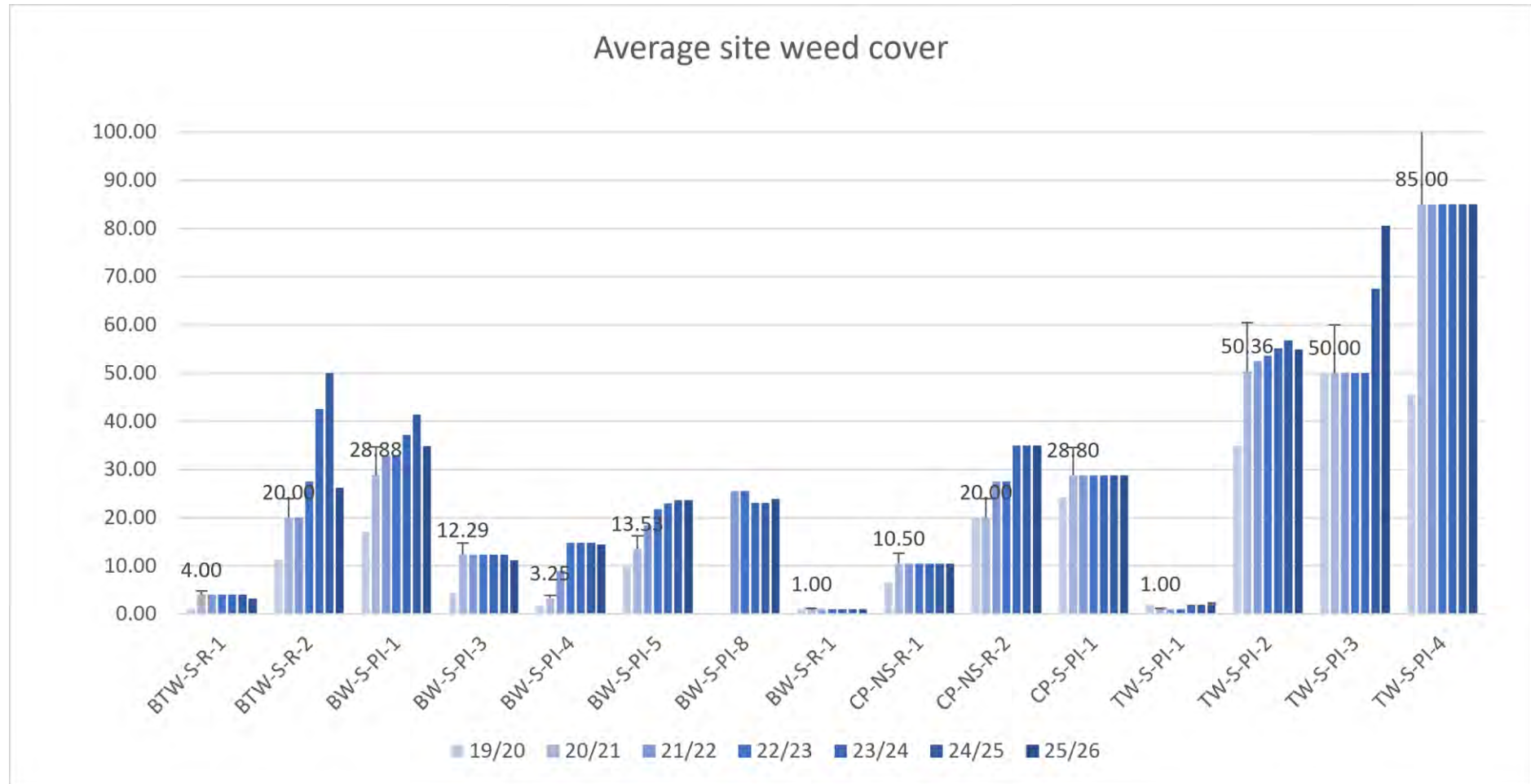


Figure 12. Changes in average weed cover for all monitoring sites for the duration of the monitoring period.

7.3.1 Banksia woodlands

There was an increase in the average weed cover at three banksia woodland monitoring potential impact sites since construction commenced in 2022 (**Figure 13**). These increases occurred at BW-S-PI-1, BW-S-PI-4, BW-S-PI-5 and were generally of a similar magnitude to one reference site, BTW-S-R-2 (**Figure 13**). Most of these increases relate to the presence of invasive grasses already present at the site. In respect of the other potential impact sites, BW-S-PI-3 remained steady with regard to weeds, and BW-S-PI-8 experienced a decrease in weeds. No increases were recorded for two of the three reference sites (BW-S-R-1 and BTW-S-R-1) as these sites were largely weed-free to start with.

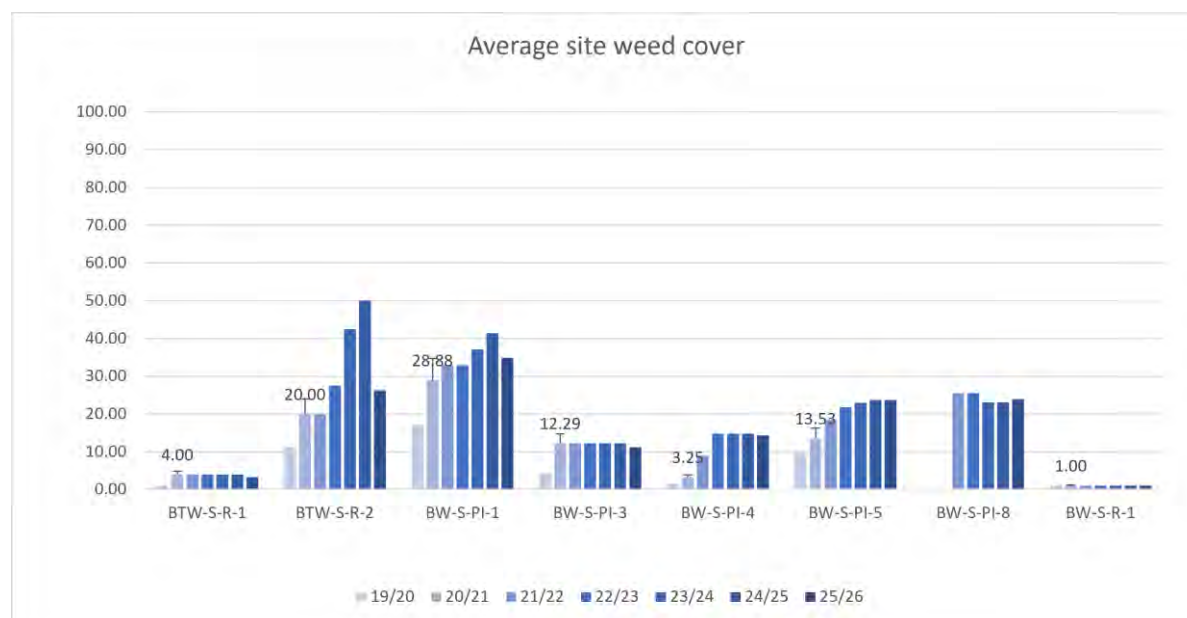


Figure 13. Change in average weed cover for Banksia woodland, potential impact and reference sites.

BW-S-PI-1

As of spring 2025, two of the seven monitoring points at monitoring site BW-S-PI-1 experienced increases in weed cover (**Plate 3**). Both increases first occurred in spring 2024 at BW-S-PI-1_P01 and BW-S-PI-1_T1W, with covers at both sites increasing from 20 - 30% to 30-70%. Both increases are not attributed to the project, but instead to the existing grass weed loads on site, in particular *Briza maxima*. The good weed hygiene adjacent to the BORR project near BW-S-PI-1_P01 is shown in **Figure 14**. Noting that weed loads at BW-S-PI-1_P01 decreased at BW-S-PI-1_P01 due to the dry autumn, resulting in a delayed germination of annual grasses.

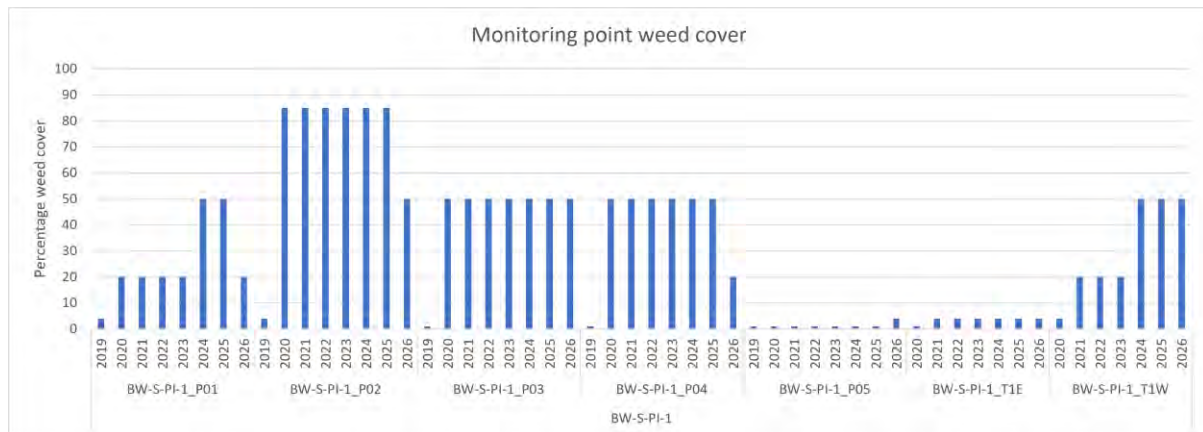


Figure 14. Change in weed cover for BW-S-PI-1.



Plate 3. Weed loads adjacent to BORR, near to BW-S-PI-1_P01, are suppressed with mulch autumn 2026.

BW-S-PI-4

Weeds increased at one site at BW-S-PI-4 following commencement of the project in 2022 at BW-S-PI-4_P01 from 10-30% to 30-70%, **Figure 15**. This increase in weeds is unlikely to be attributed to the BORR as it is over 100 m from the alignment, and the increase occurred prior to any active works being implemented along this section of the road. Instead, it is from local weed sources. Weed cover at this site has remained stable since.

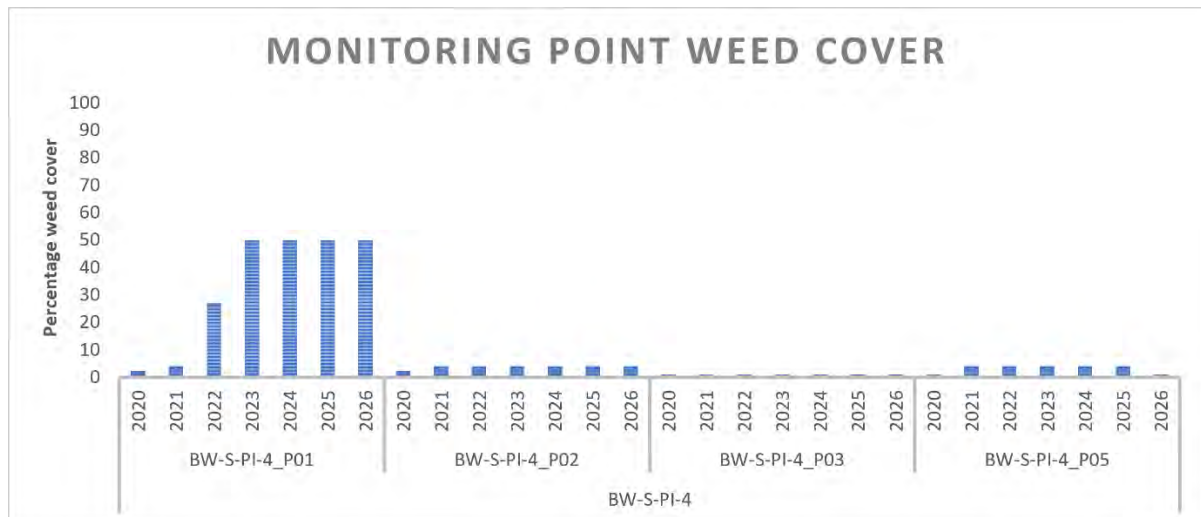


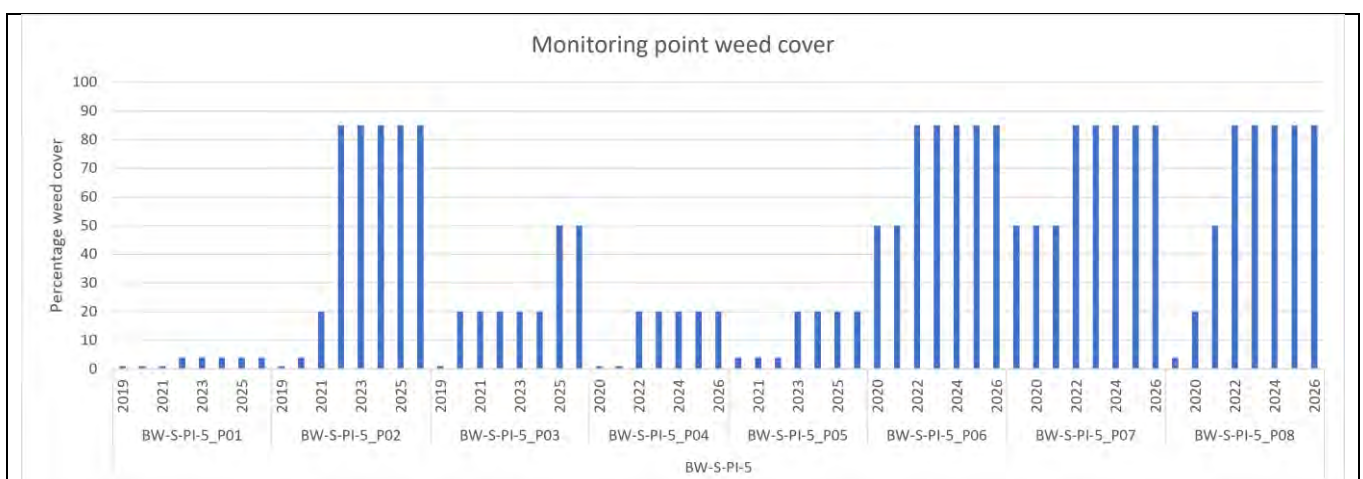
Figure 15. Change in weed cover for BW-S-PI-4

BW-S-PI-5

Thirteen of the thirty six monitoring points at monitoring site BW-S-PI-5 experienced an increase in weed cover, P05, 6, 9, 19, 21, 23, 25, 26, 28, 29, 31, 34 and BW-S-PI-5-T1S **Figure 16**. This figure shows that weed cover at most sites in the south of the monitoring site is greater than weed cover in the northern portion of the site. Higher weed cover is associated with the low numbered monitoring points, and lower weed cover is associated with the higher numbered monitoring points. This is because the southern portion of the reserve is more disturbed than the north.

Regardless, these increases in weeds are all observed to be due to local weed sources and not due to the BORR project. The clearing and road construction activities near to these monitoring points did not result in an additional source of weeds or direct disturbance within the monitoring areas and are therefore not considered to be the cause of any increase in weeds at these monitoring points. **Plate 4** shows a well maintained revegetation area with a low weed load adjacent to BW-S-PI-5_P21 in autumn 2026.

Graphs of the weeds at each site are provided in **Figure 16** and **Figure 17**.



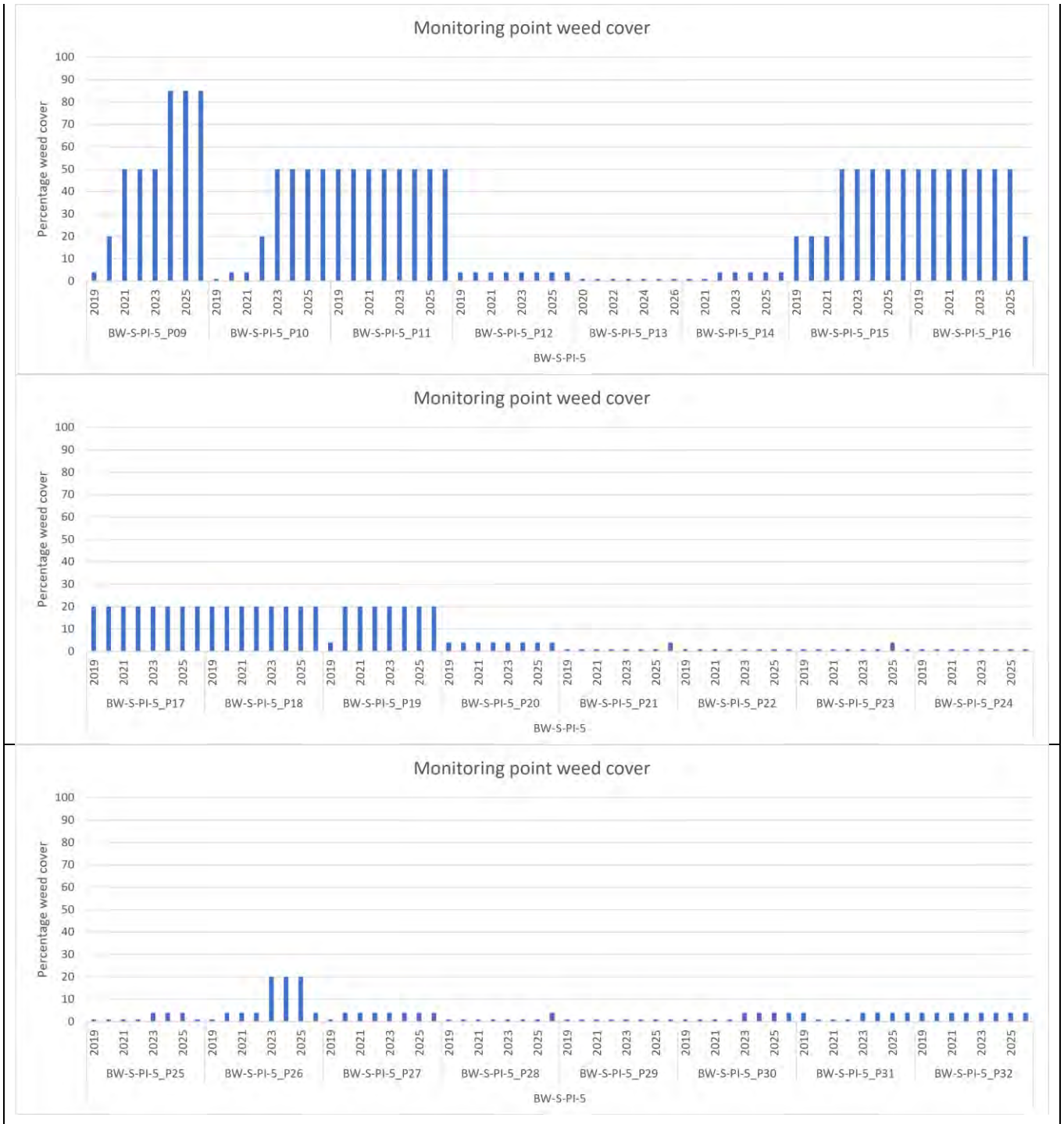


Figure 16. Change in weed cover for BW-S-PI-5.

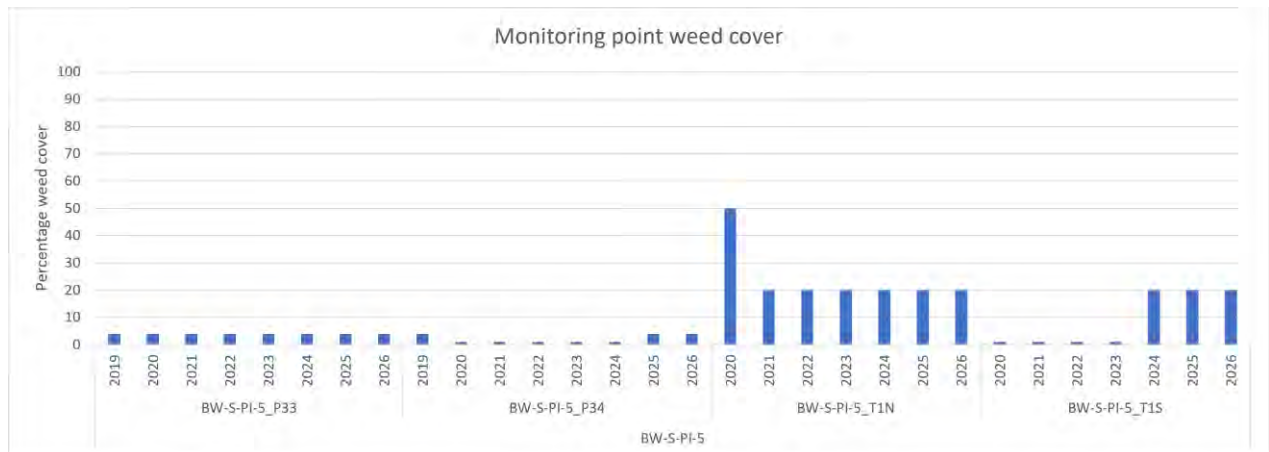


Figure 17. Change in weed cover for BW-S-PI-5



Plate 4. Well maintained revegetation area with a low weed load adjacent to BW-S-PI-5_P21 in autumn 2026.

Banksia Woodlands project attributable indirect impacts and or reportable decline:

There are no project attributable indirect impacts or reportable declines associated with increases in weed cover associated with the three Banksia woodlands potential impact sites BW-S-PI-1, BW-S-PI-4 and BW-S-PI-5 because these are attributed to local causes and not to Project related activities. Furthermore these increases were similar to reference site BTW-S-R-2.

7.3.2 Claypans

Project attributable indirect impacts and or reportable decline:

There are no project attributable indirect impacts nor reportable declines with regards to weed cover for the potential impact claypan site CP-S-PI-1, because there was no increase in weed cover relative to baseline levels (**Figure 18**).

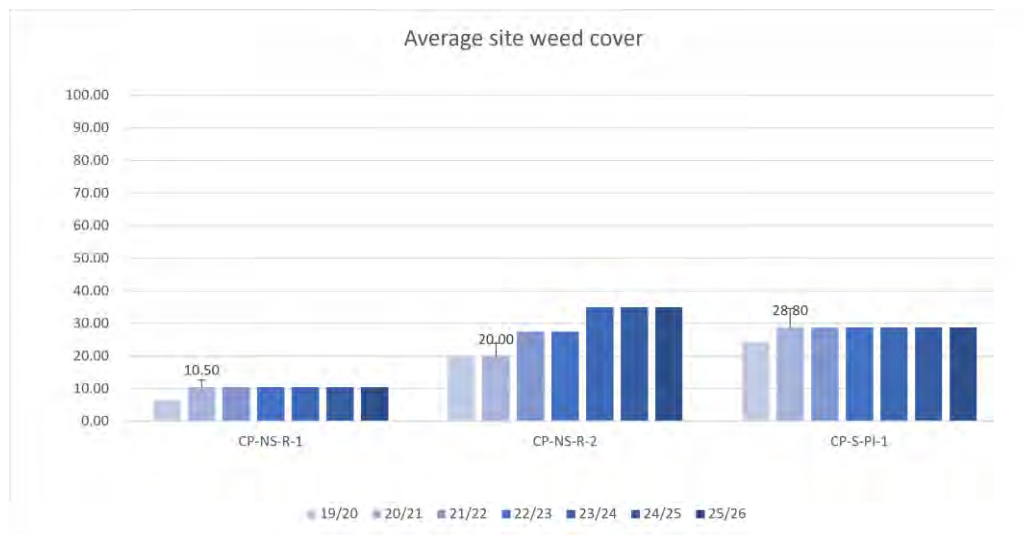


Figure 18. Change in average weed cover for claypans, potential impact and reference sites.

7.3.3 Tuart woodlands

Weed cover increased at two Tuart woodland potential impact sites, TW-S-PI-2 and TW-S-PI-3, relative to baseline levels (**Figure 19**). The increases in weed cover at both sites are not considered attributable to the project. Instead, these are attributable to weeds already within and directly adjacent to the monitoring points. Similar to the Banksia woodland sites, the increases relate to increases in invasive grasses already present at the site, such as *Bromus diandrus*, *Briza maxima* and *Ehrharta* sp.

These increases are investigated below in further detail.

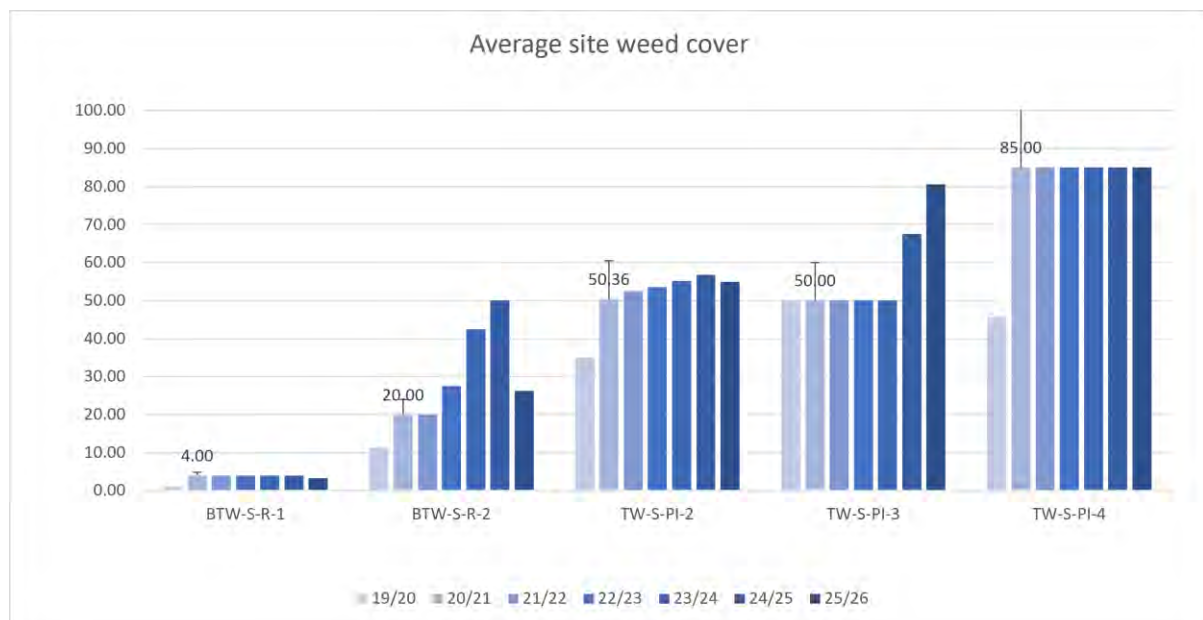


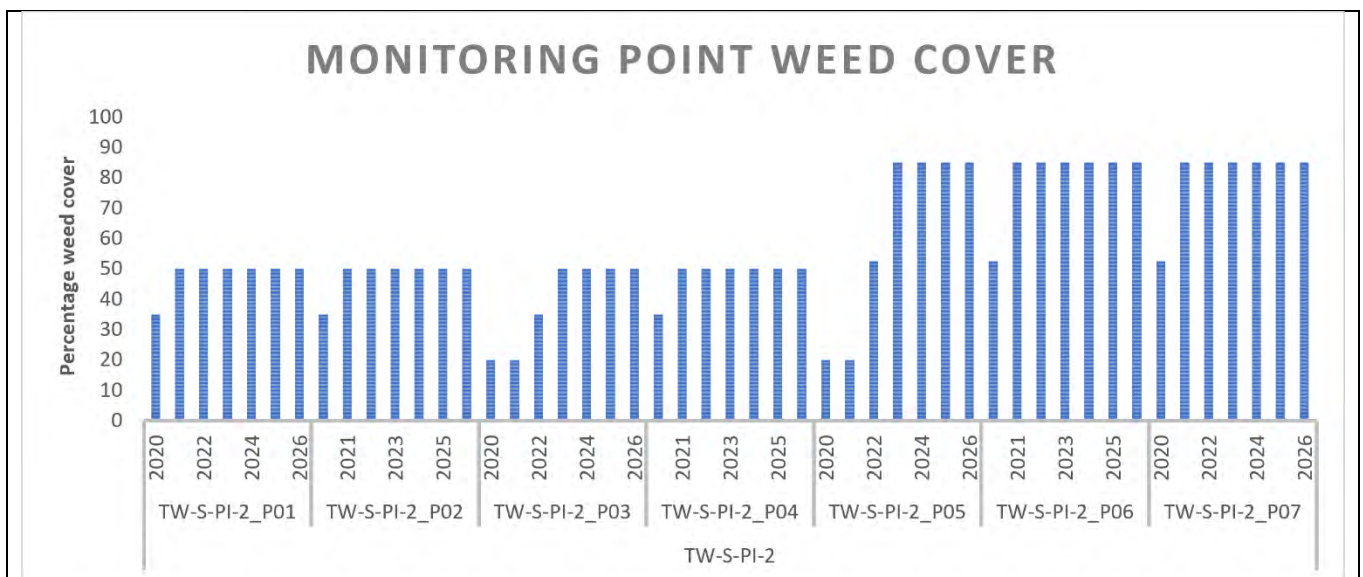
Figure 19. Change in average weed cover for Tuart woodland potential impact and reference sites.

TW-S-PI-2

The average increase at TW-S-PI-2 was relatively minor (~5%) and was attributed to increases at four out of the 19 site monitoring points, TW-S-PI-2_P03, TW-S-PI-2_P05 and TW-S-PI-2_P14 and TW-S-PI-2_P18, where weed loads increased from 30 – 70 % to >70%. These increases in weeds are attributed to local weed banks and not to the BORR, as the area adjacent to this monitoring site has been well maintained and kept relatively free of weeds, see **Plate 5 (Figure 20)**.



Plate 5. Cleared areas adjacent to TW-S-PI-2 are relatively free of weeds in autumn 2024 and spring 2024



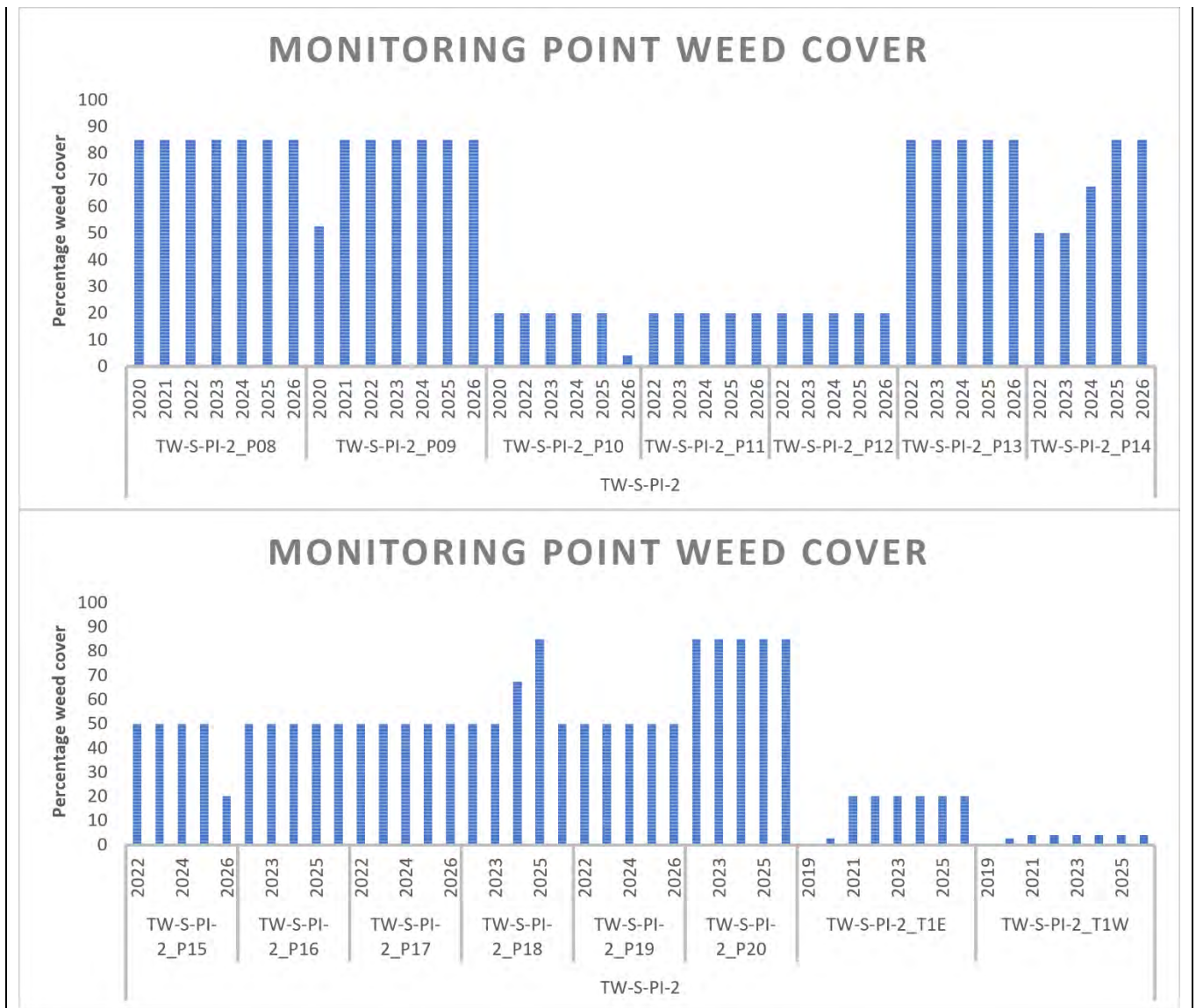


Figure 20. Change in weed cover for TW-S-PI-2.

TW-S-PI-3

All four monitoring points at this site experienced an increase in weed cover from 30 – 70 % to > 70%, **Figure 21**. The increase recorded for 2025 was comparable to that at BTW-S-R-2-T1 **Figure 22**. The substantial decrease in weed cover for autumn 2026 at BTW-S-R-2-T1 is due to the dry autumn which delayed the germination of annual grasses common at the site.

The increase in weeds at this site are not the result of the BORR as all of these points are in a Degraded condition with an existing weed load. The increases recorded in 2025 are likely the result of higher-than-average winter rains, warmer weather and the existing weed load. It is highly unlikely that it could be related to the BORR as the only activities adjacent to this site are associated with the closure of the parking bay and site revegetation. **Plate 6** shows TW-S-PI-3_P02 in Degraded condition.

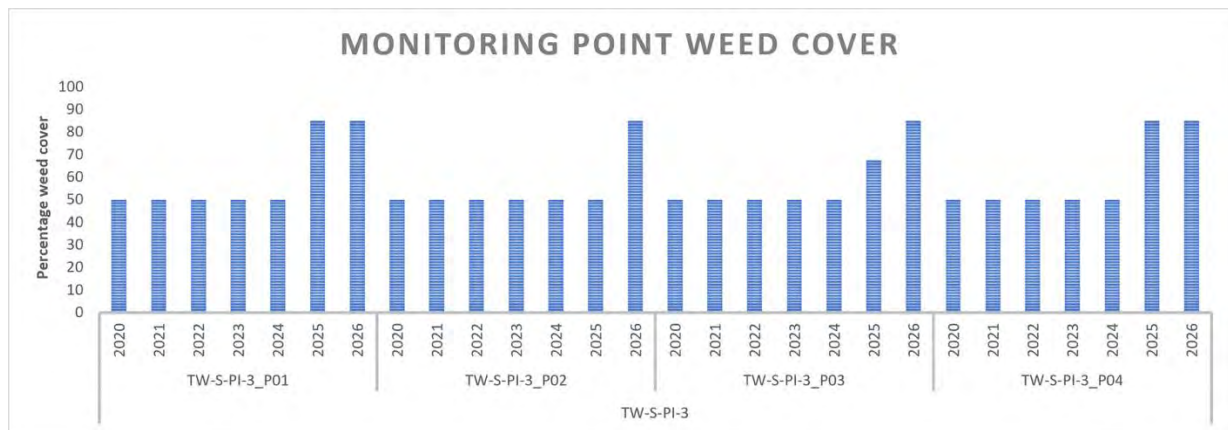


Figure 21. Change in weed cover for TW-S-PI-3.

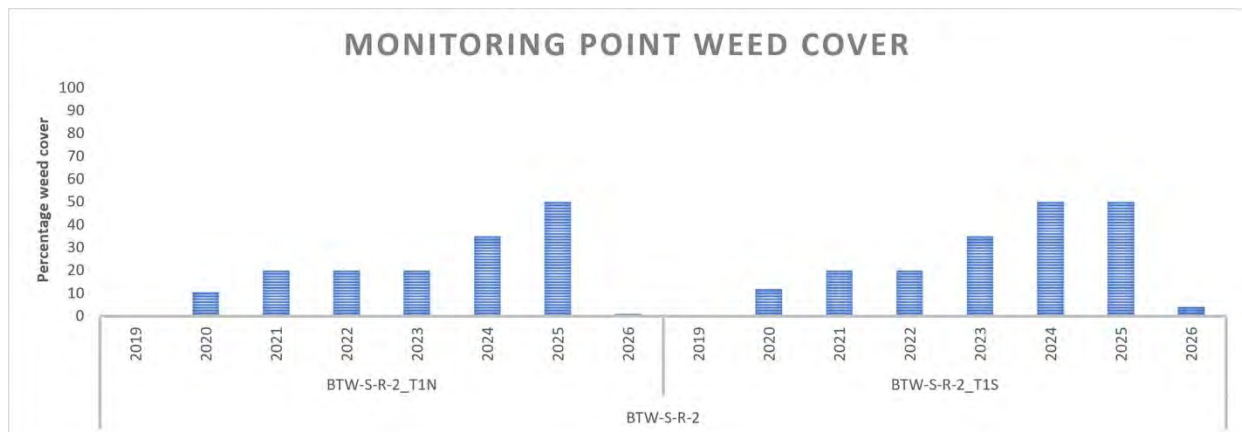


Figure 22. Change in weed cover for BTW-S-R2-T1.



Plate 6. TW-S-PI-3_P02 in a Degraded condition.

Tuart Woodlands project attributable indirect impacts and or reportable decline:

There are no project attributable indirect impacts with regard to weed cover at Tuart woodlands potential impact sites because the increases in weed cover at both these sites are not regarded as being attributable to the project. Instead, these are attributable to natural increases in mostly grass weeds, such as *Bromus diandrus*, *Briza maxima* and *Ehrharta* already within and directly adjacent to the monitoring points.

7.4 Native cover

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts or reportable declines with regard to native cover for any potential impact sites.

There has been no negative change in the percentage cover of native plants for all monitored TEC PEC types since monitoring commenced, even when considering the record drought of autumn 23/24 (**Figure 23** and **Figure 24**). The observed increase in average native cover at TW-S-PI-2 is due to the 11 additional monitoring points installed on the site in winter of 2022 and not due to an actual increase in native cover.

The comparative data for native cover recorded at the boundary photopoint sites are presented in **Appendix 3**.

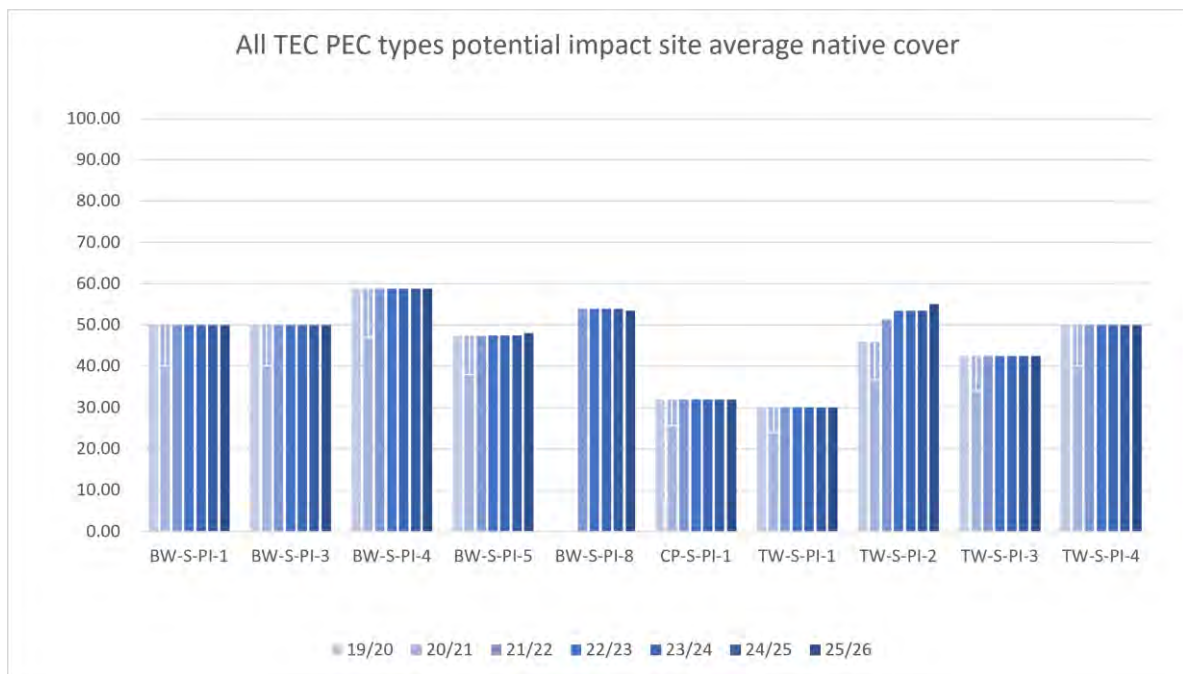


Figure 23. Average native cover of all potential impact sites.

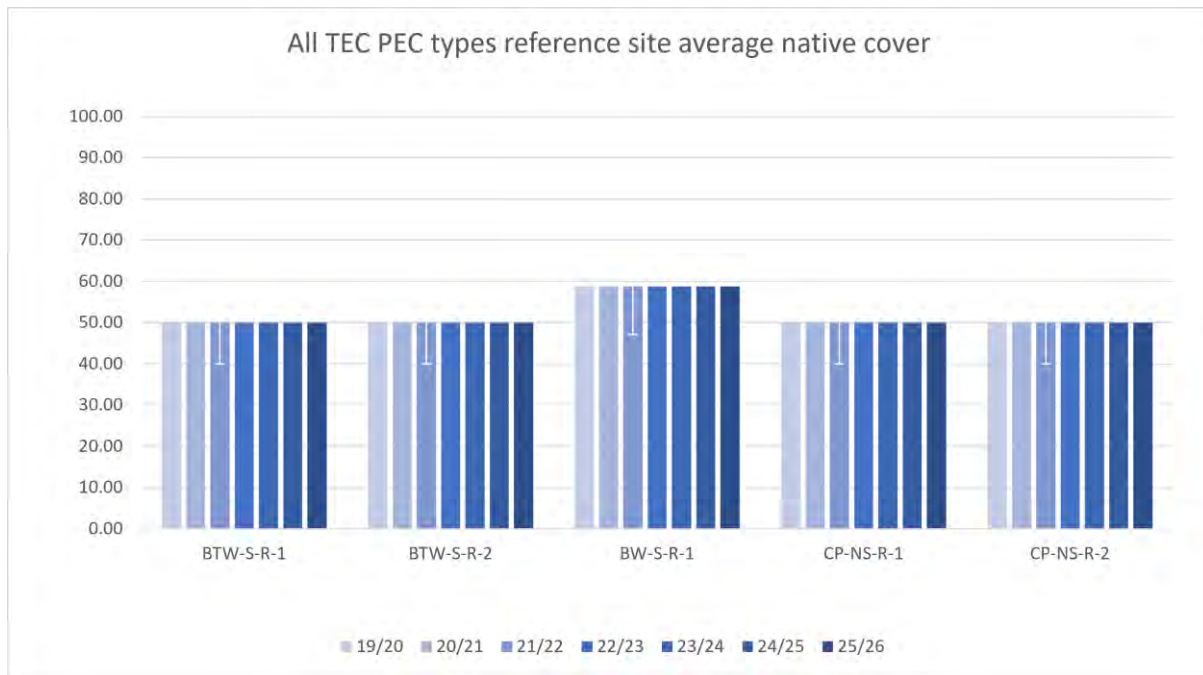


Figure 24. Average native cover of all reference sites.

7.5 Plant stress

The average plant stress of the dominant trees/shrubs within a 20 m x 20 m area of all 88 boundary photopoints and 22 transect end points have been recorded since spring 2020.

Figure 25 shows that six of the nine potential impact monitoring points experienced an increase in stress relative to baseline levels, four Banksia sites and two Tuart TEC sites. Two of the reference sites BW-S-R-1 and CP-NS-R-1 also experienced an increase in stress, but this was not to the same extent as for the potential impact sites. This increase in stress occurred for the most part as a result of the record breaking summer/autumn drought in 23/24. One site, BW-S-PI-5, however, experienced a reduction in stress over the same monitoring period and two sites, CP-S-PI-1 and TW-S-PI-4, remained unchanged. The static levels for the Tuart Woodland TEC TW-S-PI-4 are similar to the Tuart reference sites BTW-S-R-1, BTW-S-R-2 and the static level for the potential impact claypan site CP-S-PI-1 are similar to CP-NS-R-2. The stress patterns for the reference sites is shown in **Figure 26**.

As discussed in the previous monitoring report Ecoedge (2025) the contrasting stress pattern appears to relate to topography with vegetation located atop hills and on slopes experiencing greater levels of stress than those located on flats. The two sites with the most stress BW-S-PI-8 and TW-S-PI-8 both have monitoring points located on the highest hills in the BORR project area. By contrast the sites with the most stability such as BW-S-PI-5 are located on flats.

The patterns of stress are discussed below for each of the monitored TECs.

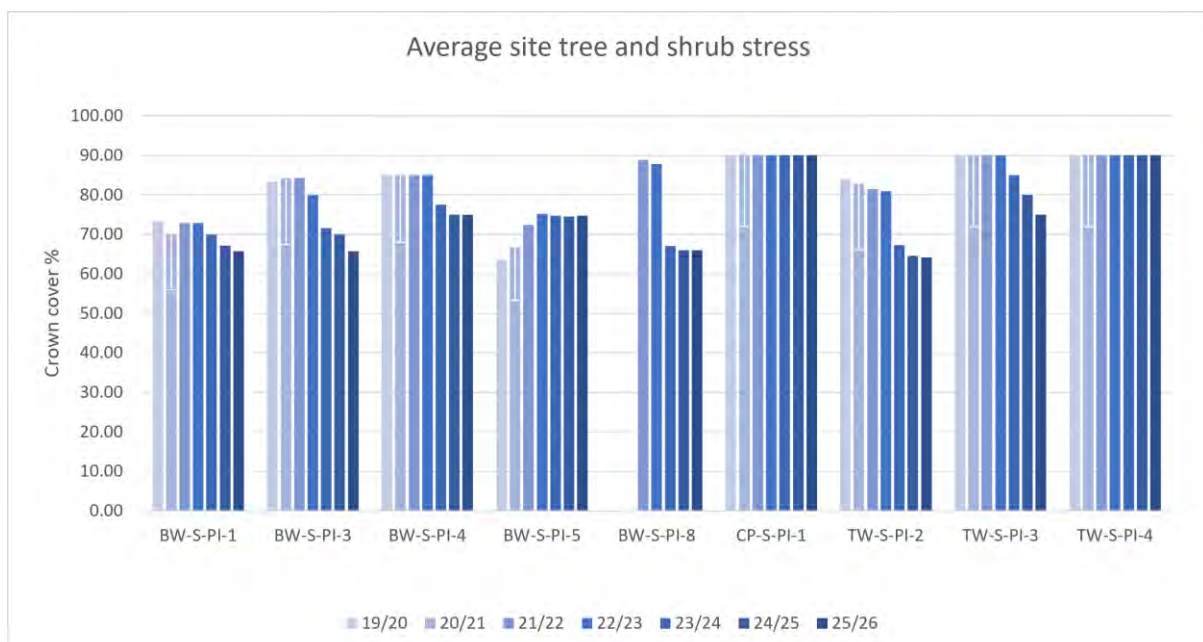


Figure 25. Average tree and shrub stress at potential impacts sites.

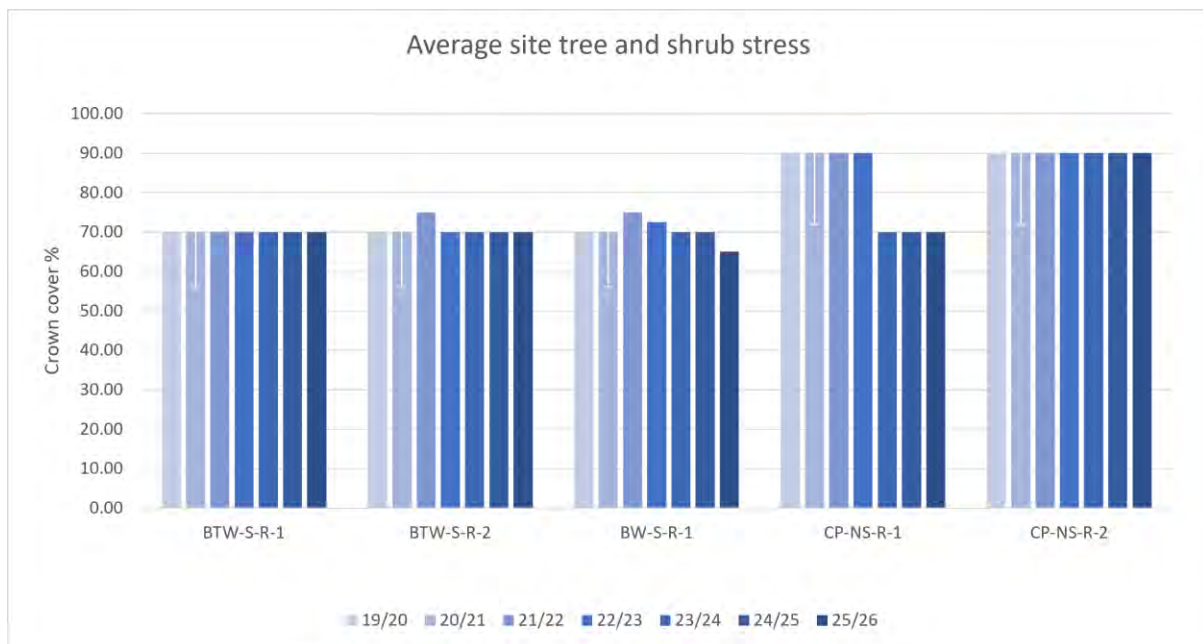


Figure 26. Average tree and shrub stress at reference sites.

7.6 Banksia Woodlands

Average stress increased at four potential impact Banksia / Banksia Tuart woodland sites, (BW-S-PI-1, BW-S-PI-3, BW-S-PI-4 and BW-S-PI-8 and one reference site (BW-S-R-1) relative to 2021/2022 baseline levels. Of these BW-S-PI-3 and BW-S-PI-8 recorded an average increase in stress greater than 20%.

Two sites remained stable (BTW-S-R-1, BTW-S-R-2), and one site increased in health from spring 2021 levels, BW-S-PI-5. These patterns in stress can be seen in **Figure 27**.

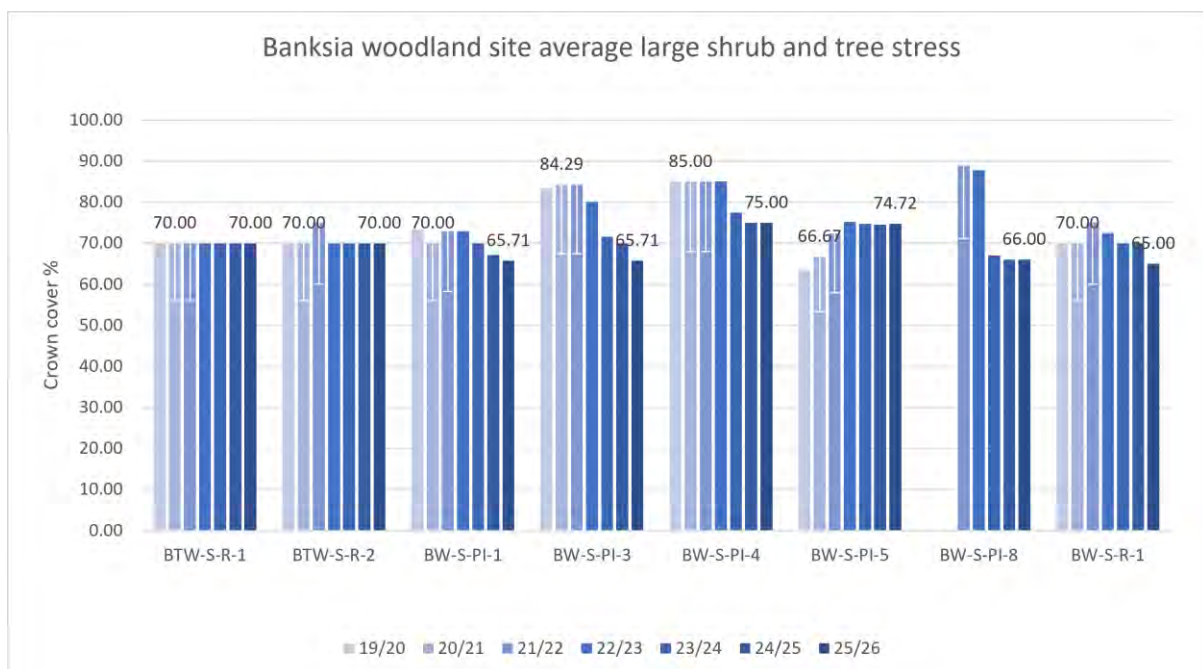


Figure 27. Change in average large shrub and tree stress for Banksia woodland, potential impact and reference sites.

Further analysis was undertaken to investigate increases in stress at specific monitoring points where an increase was recorded within the potential impact sites. This occurred at BW-S-PI-1, BW-S-PI-3, BW-S-PI-4 and BW-S-PI-8. These increases were assessed individually to determine trends, scale of increase and the potential cause of increase, in particular whether they could be attributed to the BORR project.

BW-S-PI-1

Stress levels were observed to increase in three of the seven sites, BW-S-PI-1_P03, BW-S-PI-1_P05 and BW-S-PI-1_T1W, whilst the other sites remained stable (**Figure 28**).

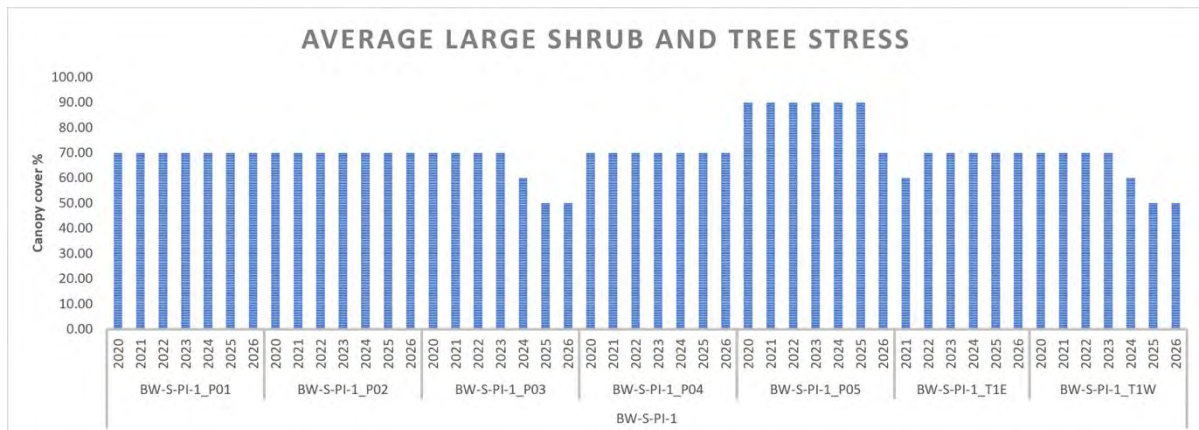


Figure 28. Change in average large shrub and tree stress for Banksia woodland potential impact site, BW-S-PI-1.

The increases in BW-S-PI-1_P03 and BW-S-PI-1_T1W occurred as a result of the impacts of the summer autumn 23/24 drought, with almost all *Banksia attenuata* and *B. grandis* saplings dead. *Corymbia calophylla* and *Xylomelum occidentale* trees were also very stressed. The stress at both these sites was observed to increase in 2025 and then stabilised in 2026, with trees manifesting about a 50% canopy cover. These impacts were also observed to be scattered throughout the surrounding vegetation. The effects of stress at BW-S-PI-1_P03 are shown in **Plate 7**. The recent increase in stress observed in autumn 2026 at BW-S-PI-1_P05 was due to a localised decline in health in *Banksia attenuata*. This increase in stress is unlikely to be attributed to the BORR, as the impact was observed to be localised, with no clear or consistent pattern of stress that could directly link it to the BORR. For example, both BW-S-PI-1_P01 and BW-S-PI-1_P02, which are an equal distance, approximately 40 m, from the BORR, as BW-S-PI-1_P05 had a stable stress pattern. **Plate 8** shows the area adjacent to BW-S-PI-1_P05 being largely undisturbed and free of weeds.



Spring 2022



Spring 2024

Plate 7. BW-S-PI-1_P03 plant stress in spring 2024 compared to spring 2022.



Plate 8. Photo showing the area adjacent to BORR and BW-S-PI-1_P1_P05, undisturbed and free of weeds.

Project attributable indirect impacts and or reportable decline:

There are no project attributable indirect impacts and therefore no reportable declines associated with the potential impact site BW-S-PI-1. The increases in stress at two monitoring points are attributable to the impacts of autumn summer 23/24 drought conditions, and the recent increases at BW-S-PI-1_P05 are due to local factors, unlikely to be related to the BORR.

BW-S-PI-3

Stress levels were observed to increase in six of the seven sites at BW-S-PI-3 relative to baseline levels. Only BW-S-PI-3_P02 remained stable (**Figure 29**).

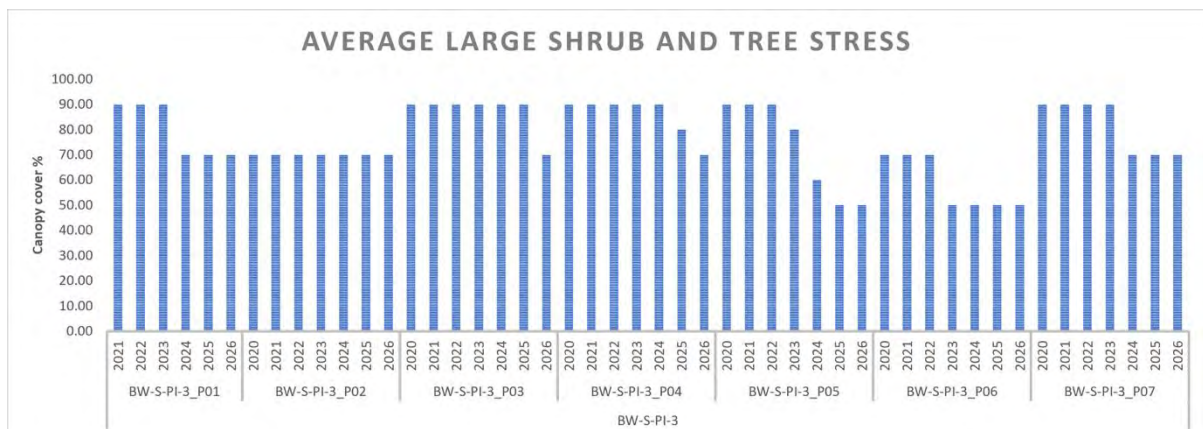


Figure 29. Change in average large shrub and tree stress for Banksia woodland potential impact site BW-S-PI-3.

The increase in stress at BW-S-PI-3_P01, first observed in autumn 2024, is attributed to a reduction in the health of Marri trees at the site due to the impacts of the autumn 2024

drought. Up to this point, the health of vegetation at this monitoring point had been relatively healthy.

The recent increases in stress in BW-S-PI-3_P03 Autumn 2026 and BW-S-PI-3_P04 are due to an observed decline in the health of Jarrah. These trees went from a healthy canopy cover of > 81 % to a canopy of between 61-80%. The impacts of *Phytophthora* dieback, present in the reserve, are not clearly evident at these sites, so it is possible that it is due to compounded effects of the record-breaking summer autumn drought of 23/24 and then by the drier than average and largely episodic autumn 2026 rain. This generally declining pattern from > 81 % to 61-80% is evident in four of the five *Banksia* woodland potential impact sites but was not observed in the reference sites. However, the baseline stress for all *Banksia* woodland reference sites was already compromised starting at between 61-80%, so it is possible had the canopy health been higher that it would also have showed a similar pattern of increasing stress pattern as a result of ongoing drying effects. The ongoing observations of sites indicate that it is generally harder to increase in stress from a 61-80% canopy than from a > 81 % canopy as trees have to be significantly stressed for this to occur. A transition to and from > 81% may be part of a 'seasonal cycle'.

These impacts to BW-S-PI-3_P03 and BW-S-PI-3_P04 are unlikely to be due to the BORR as the pattern of stress was largely restricted to one species, Jarrah. Had it been related to BORR it is likely that it would have been recorded in other species, including Marri and *Banksia*. This pattern would likely have showed an increase in stress close to the road which attenuated with distance from it. This was not the case.

The increase in stress for P05, P06 and P07 is likely due to the ongoing impacts of *Phytophthora* dieback clearly observed in this section of the reserve prior to project activities (see section 5.6). The impacts of the summer autumn drought of 23/24 were generally evident but not uniform across the whole site and likely exacerbated the stress at P07. The most drought-affected species across the site were *Banksia grandis* and Jarrah trees, mostly saplings.

This property has been recently purchased with the owner undertaking boundary fencing and fire break maintenance. Possible future impacts to this vegetation because of this private purchase are beyond the control of Main Roads.

Project attributable indirect impacts and or reportable decline:

It is considered that there are no project attributable indirect impacts and therefore no reportable declines associated with the potential impact site BW-S-PI-3. The increases in stress observed in the reserved ongoing impacts of *Phytophthora* dieback, the record breaking autumn summer 23/24 drought conditions, compounded by below average 2026 autumn rainfall.

BW-S-PI-4

The stress levels increased at two of the four monitoring points at this site, at BW-S-PI-4_P01 and BW-S-PI-4_P03 in 2024 (**Figure 30**).

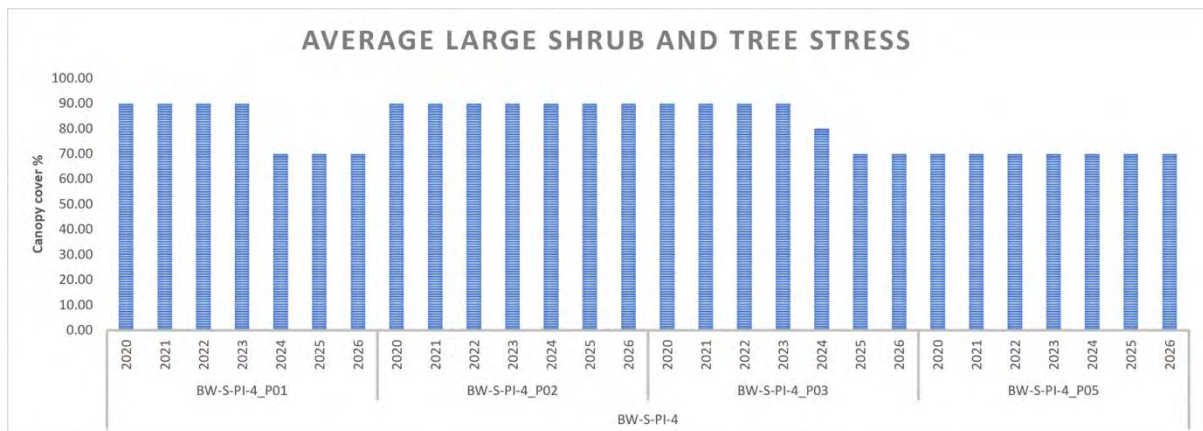


Figure 30. Change in average large shrub and tree stress for Banksia woodland potential impact site, BW-S-PI-4.

The stress at BW-S-PI-4_P01 was primarily due to the native fungal pathogen *Quambalaria coyrecup* in the *Corymbia calophylla* recorded at the site. These impacts were recorded prior to the start of BORR activities near the site.

Whereas the increase in stress at BW-S-PI-4_P03 was due to the record autumn drought conditions of 2024, which were evident but not uniform across the entire site. Some species were more affected than others, including young Jarrah trees, *Xylomelum occidentale* and interestingly, the weed species *Acacia longifolia longifolia*.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts and therefore no reportable declines associated with the potential impact site BW-S-PI-4. The increase in stress at BW-S-PI-4_P01 is attributable to Marri canker (*Quambalaria coyrecup*), which was pre-existing at the site, and the increase at BW-S-PI-P03 is due to the impacts of the record-breaking autumn 2024 drought.

BW-S-PI-5

BW-S-PI-5 has 36 monitoring points. Stress levels in trees and large shrubs have remained stable at 16 sites, reduced at 18 sites, and increased at three sites at BW-S-PI-5_P04, BW-S-PI-5_P34, and BW-S-PI-5_TN1 since monitoring commenced in 2019.

The increase at BW-S-PI-5_P04 occurred in autumn 2023, prior to works commencing and was due to thinning in the crowns of Banksia and Jarrah. This site has remained stable since then.

The stress at BW-S-PI-5_P34 recorded in autumn 2024 was due to the severe drought in 23/24. The apparent absence of stress in the balance of the site did not mean that it was without stress, with the observed residual impacts of the severe 23/24 drought still evident in 2026 with scattered, or patchy impacts across most of the site (**Plate 9** and **Plate 10**). The impact observed at the monitoring points and across the broader site was and is still limited mainly to certain species, such as *Banksia grandis*, *Banksia attenuata*, *Eucalyptus marginata*

(mostly saplings), the small shrub *Hibbertia hypericoides* and the forb *Caesia micrantha* (**Plate 9** and **Plate 10**).

The more recent decline in health at BW-S-PI-5_TN1 is attributed to a localised increase in stress in Marri and Jarrah trees.

It is believed the BORR is not a cause of the increase in stress at BW-S-PI-5_P34 and BW-S-PI-5_TN1 or the other scattered impacts not monitored. This is because there is no clear pattern of stress that would link the cause to the BORR, as much of the vegetation directly adjacent to the BORR is observed to be in a generally healthy condition **Plate 11** and **Plate 12**. Results are provided in **Figure 31**. **Plate 13** and **Plate 14** shows a healthy understorey and canopy vegetation and low weed revegetation near BW-S-PI-5_P18, autumn 2026.



Plate 9. Drought affected *Hibbertia hypericoides* near BW-S-PI-5_P23 in autumn 2024.



Plate 10. Drought affected *Phlebocarya ciliata* located near BW-S-PI-5_P33, autumn 25 and autumn 26



Plate 11. The grey shrubs in the understory are stressed *Hibbertia hypericoides* near BW-S-PI-5_P16, autumn 2025.



Plate 12. Shows an essentially healthy understory, including *Hibbertia hypericoides*, near BW-S-PI-5_P25, autumn 2025.



Plate 13. Shows a healthy understorey and canopy vegetation and low weed revegetation near BW-S-PI-5_P18, autumn 2026.



Plate 14. Shows a healthy understorey and canopy vegetation near BW-S-PI-5_P18, autumn 2026.



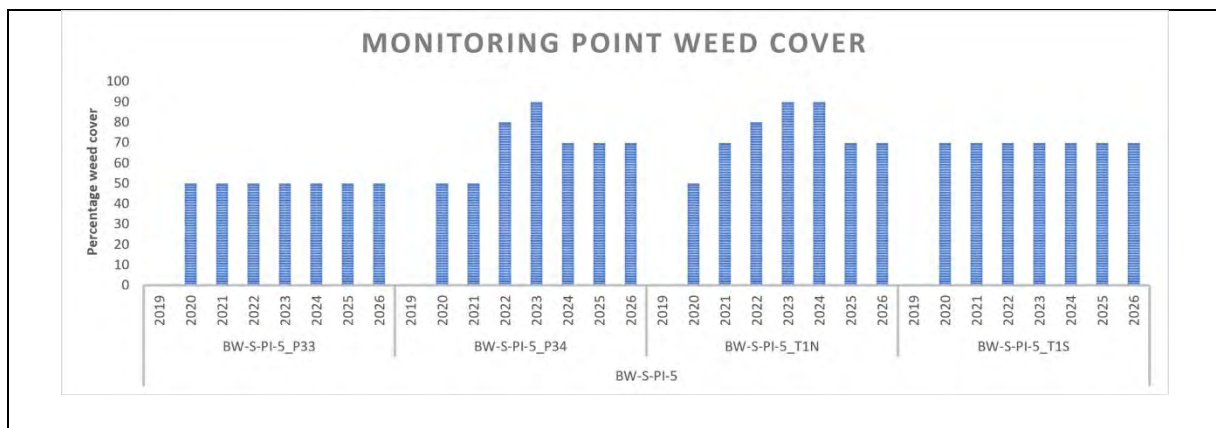
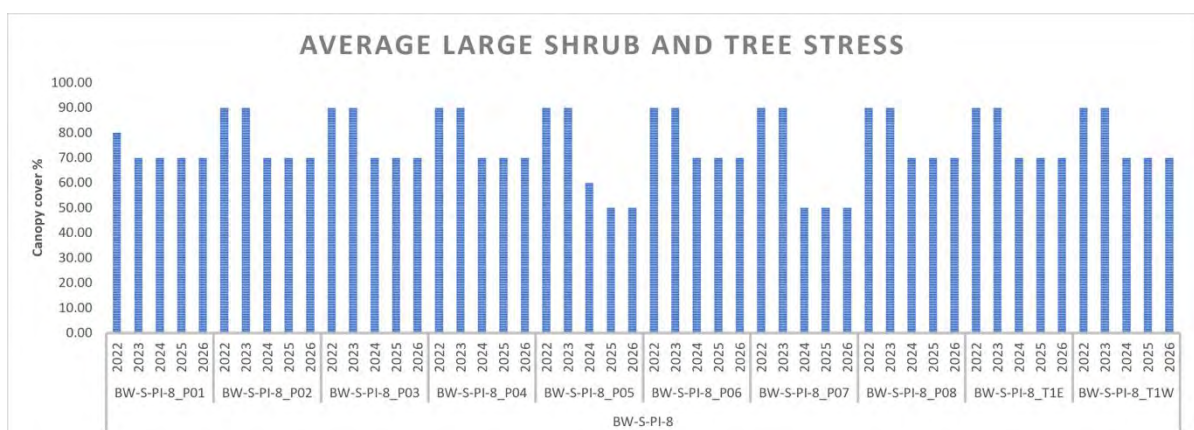


Figure 31. Change in average large shrub and tree stress for Banksia woodland potential impact site BW-S-PI-5.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts and therefore no reportable declines associated with the potential impact site BW-S-PI-5. The impacts of stress observed at the three monitoring points site are attributed to local factors and more broadly to the record-breaking 23/24 drought and not to BORR-related activities, as there is no clear pattern of stress at the site that would indicate it was the cause.

BW-S-PI-8

BW-S-PI-8 was the most drought affected monitoring site in the BORR Southern Referral area in the record breaking 23/24 drought, with nine of the ten sites recording an increase in stress monitoring round. There was concern that the drought's impacts would persist and worsen at the site; however, the above-average rainfall that followed the drought in 2024 and the average rainfall in 2025 appear to have limited further impacts, with no further increases in stress observed in the autumn 2026 monitoring round. **Plate 15** shows evidence of recovering Peppermint trees (*Agonis flexuosa*) near BW-S-PI-8_P07. This site declined from an average canopy cover or > 81% canopy to between 41 – 60% following the drought.



Previous monitoring in 2022 had identified potential project-related stress at monitoring point BW-S-PI-8_P01, which could be attributed to the project because this point was in the closest proximity to the boundary of the cleared area and now the barrier wall. Stress increased at this site in 2022 while all the other points remained stable at a > 81% crown cover rating. The plant stress at this point is related to reductions in the health of large marri and

jarrah trees on the site. The 2023 report considered it unlikely that the stress was project-related because increases in stress independent of the clearing activities were commonly observed in Jarrah and Marri trees in intact vegetation, such as that evidenced at transect BW-S-R_T1E and the drainage monitoring points BW-S-PI-3_D1 (w20), BW-S-PI-5_D1 (w20) and BW-S-R-1_D1(w20) refer to **Table 17**. No further increases in stress have been recorded for this point **Plate 16**.



Plate 15. Recovering *Agonis flexuosa* trees and some young saplings near BW-S-PI-8_P07



Plate 16. BW-S-PI-8_P01 autumn 24 and spring 24. Note that the Banksia in the foreground had to be removed for the installation of the sound wall.

Project attributable indirect impacts and or reportable decline: There are no project attributable indirect impacts and therefore no reportable declines associated with the potential impact site BW-S-PI-8. There were no new impacts of stress observed during the 25/26 monitoring round and all previously reported increases in stress are attributed to the record-breaking 23/24 drought and not to BORR-related activities, as there is no clear pattern of stress at the site that would indicate it was the cause.

BW-S-R-1

Stress levels have, on the whole, declined at the transect-based reference monitoring point BW-S-R-1_T1 (**Figure 32**). This decline is attributed to the ongoing impacts of *Phytophthora dieback*. BW-S-R-1_T1 is likely to behave similarly to other Banksia woodland sites on Bassendean soils, such as BW-S-PI-1 and BW-S-PI-3.

The variation in stress levels at BW-S-R-1_T2 appears related more to variations in seasonal rainfall rather than *Phytophthora*. This site occurs on relatively alkaline Spearwood soils, which can retard or limit the impacts of the pathogen. BW-S-R-1_T2 is likely to behave similarly to other Banksia woodland sites on Spearwood soils such as BW-S-PI-4, BW-S-PI-5 and BW-S-PI-8.

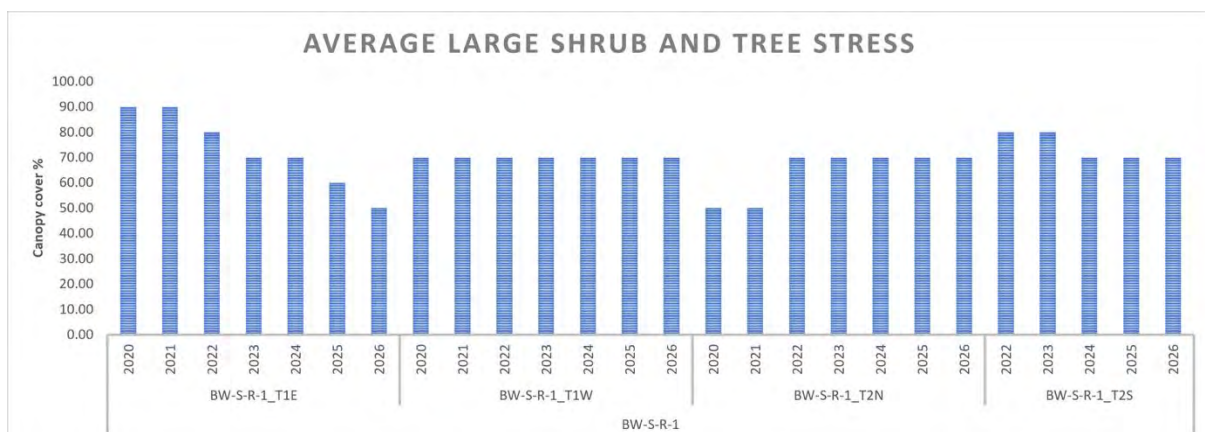


Figure 32. Large shrub and tree stress at BW-S-R-1.

7.7 Tuart woodland

Average stress increased at two of the three Tuart woodland potential impact sites (TW-S-PI-2 and TW-S-PI-3) relative to baseline levels, with largest increase in stress occurring at TW-S-PI-2. The other potential impact site TW-S-PI-4, and the two reference sites BTW-S-R-1 and BTW-S-R-2 remained stable. The average stress for each site is shown in **Figure 33**. Further analysis was undertaken to investigate increases in stress at specific monitoring points where an increase in stress was recorded within the Potential impact sites.

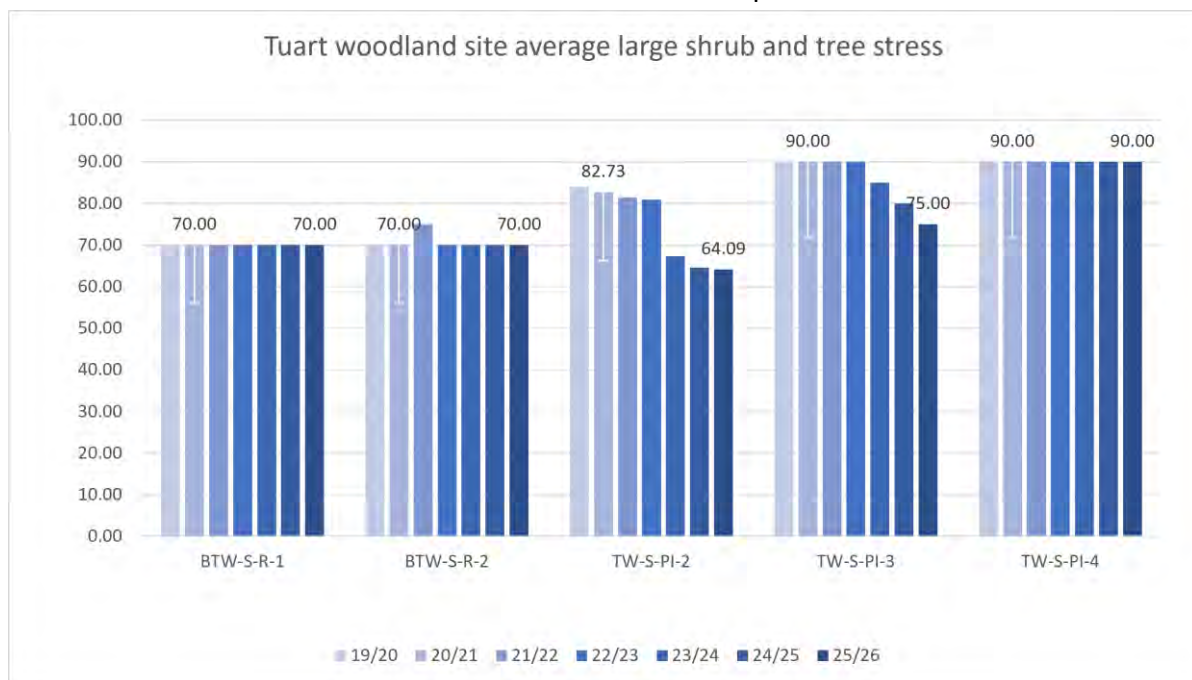


Figure 33. Change in average large shrub and tree stress for Tuart woodland, potential impact and reference sites.

TW-S-PI-2

Like BW-S-PI-8, TW-S-PI-2 (**Figure 34**) experienced severe drought impacts to parts of its vegetation following the record breaking 23/24 drought and like BW-S-PI-8, there was concern that the impacts of the drought reported in the two previous monitoring rounds, Ecoedge (2024) and Ecoedge (2025), would continue and result in worsening impacts at the site. However, the above-average rainfall that followed the 2024 drought and the average rainfall in 2025 appear to have had only a limited impact, with only one site, TW-S-PI-2_P11, showing increased stress in the autumn 2026 monitoring round. By contrast, three sites, TW-S-PI-2_P12, P13 and P16, recorded a decrease in stress. **Plate 17** shows evidence of recovering Peppermint trees (*Agonis flexuosa*) near TW-S-PI-2_P16.

The increase in stress at TW-S-PI-2_P11 is attributed to the ongoing and localised decline in Jarrah at the site, as there is no pattern of stress in the vegetation that would link it to the project.

A chronology of stress at the site is shown in **Figure 35** and **Figure 36**.



Plate 17. TW-S-PI-2_P16 showing recovering *Agonis flexuosa*.

Project attributable indirect impacts and or reportable decline:

There are no project attributable indirect impacts and therefore no reportable declines associated with the potential impact site TW-S-PI-2. There were no significant increases in stress for this monitoring round, and all previous increases in stress at the site are attributable to the record drought (BOM 2024a and BOM 2024b), as discussed above.



Figure 34. Change in average large shrub and tree stress for Tuart woodland potential impact TW-S-PI-2.

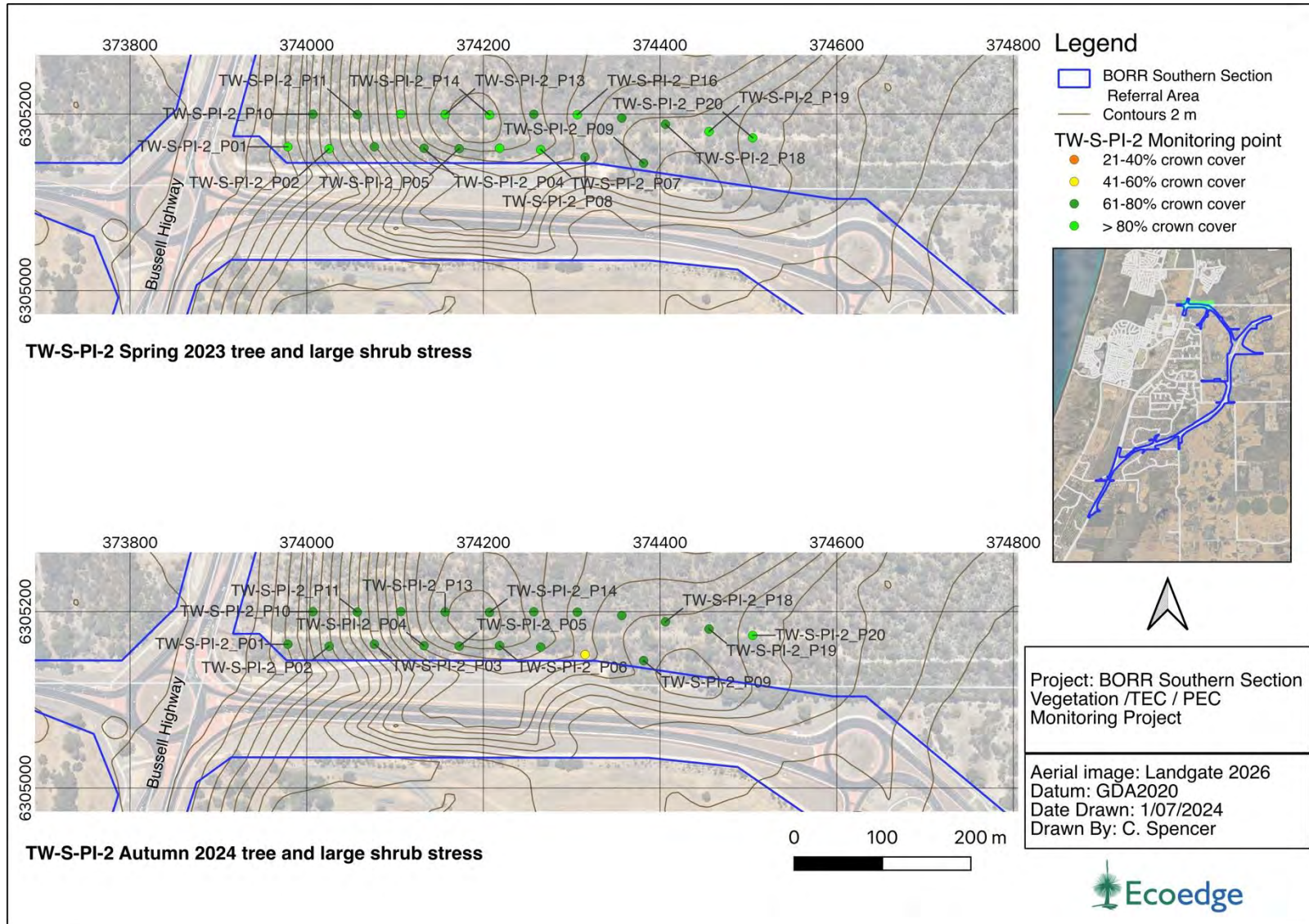


Figure 35. Chronology of stress-affected monitoring points at TW-S-PI-2 spring 2023 and autumn 2024.

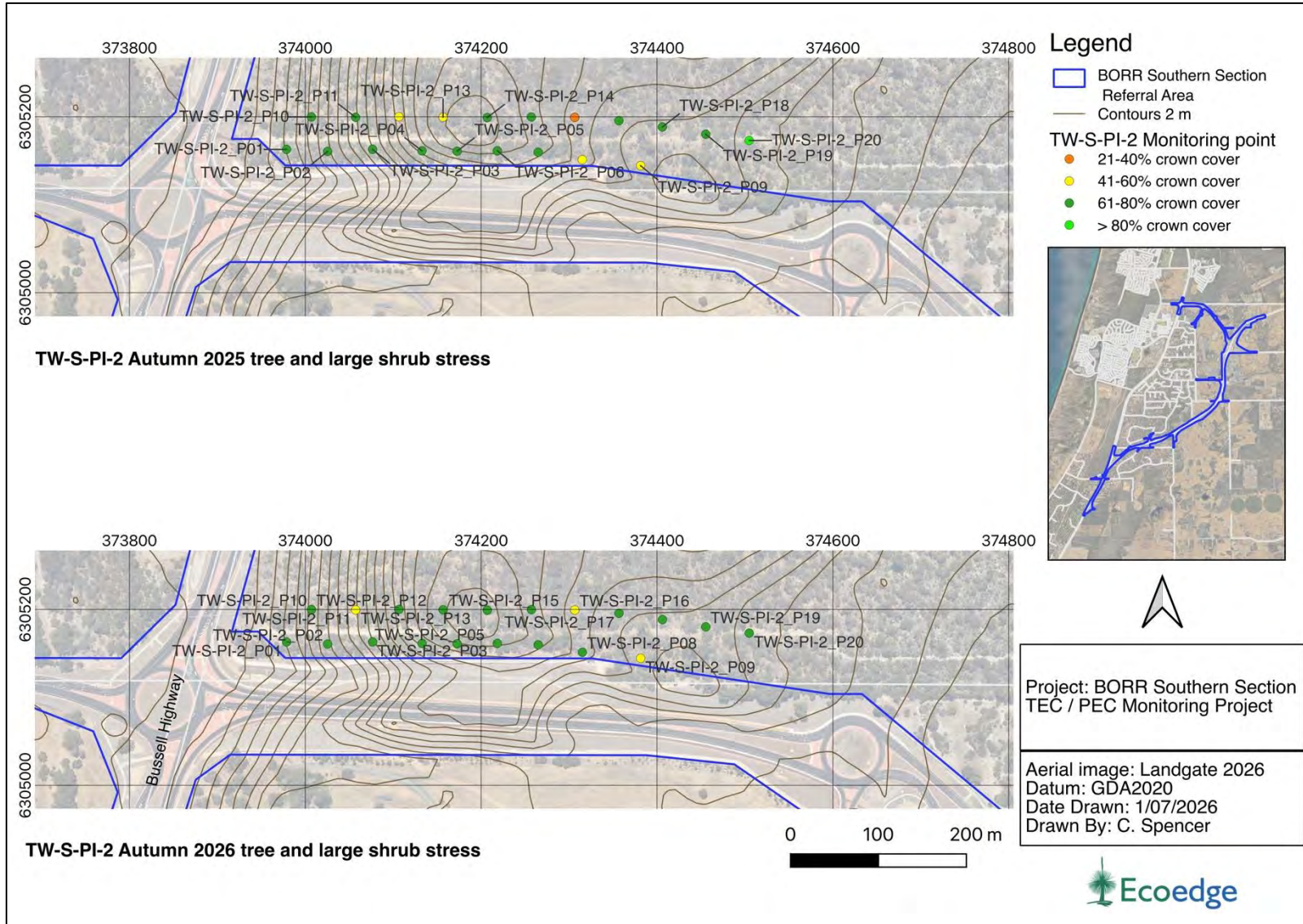


Figure 36. Chronology of stress-affected monitoring points at TW-S-PI-2 autumn 2025 and autumn 2026.

TW-S-PI-3

Stress levels in the trees and large shrubs have increased at three of the four sites relative to baseline levels (**Figure 37**).

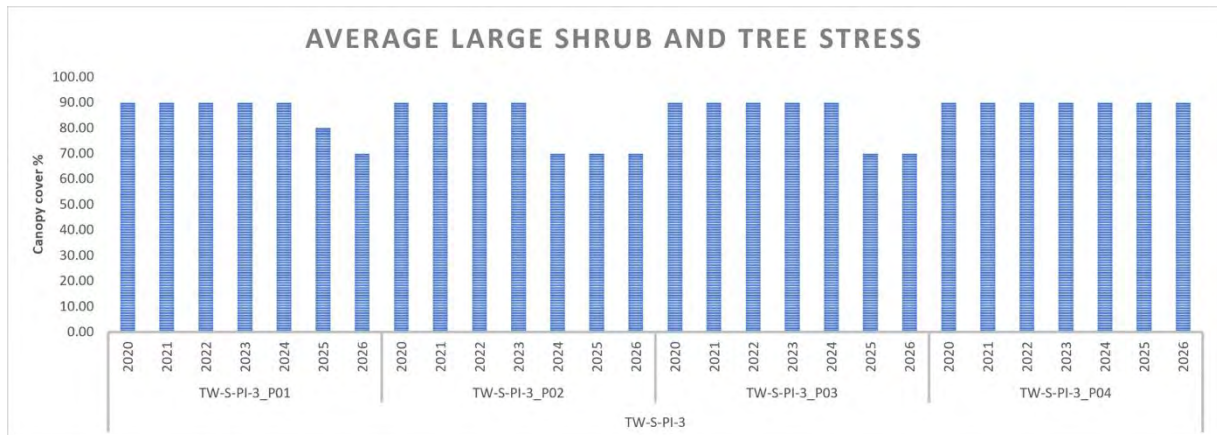


Figure 37. Change in average large shrub and tree stress for Tuart woodland potential impact site TW-S-PI-3.

The first observed increase in stress at the monitoring site occurred at TW-S-PI-3_P02 during Autumn 2024 monitoring round. This was due to observed stress in *Agonis flexuosa* and the medium shrub *Jacksonia furcellata* and was attributed to the severe 23/24 drought due to the absence of a pattern of stress linking it to BORR activities.

Further stress was observed at TW-S-PI-3_P03 for the first time in Autumn 2025 due to increases in stress of Jarrah and *Agonis flexuosa*. The increase was not attributed to the BORR, as there was no logical cause for this to be the case. The adjacent layby was closed in the previous spring and subject to site restoration works, including revegetation activities.

An increase in stress at TW-S-PI-3_P01 with trees reducing their canopy cover from >81 % to 61-80% was observed for the first time in Spring 2025. Similar to TW-S-PI-3_P03 the increase was not attributed to the BORR, as there was no logical cause for this to be case. **Plate 18** shows the area adjacent to TW-S-PI-3_P01, including revegetation activities.



Plate 18. Revegetation activities adjacent to TW-S-PI-3_P01 which is located on the east side of the fence.

Project attributable indirect impacts and or reportable decline:

There are no project attributable indirect impacts and therefore no reportable declines associated with the potential impact site TW-S-PI-3, as discussed above.

7.8 Claypans

Project attributable indirect impacts and or reportable decline:

There are no project attributable indirect impacts with regard to plant stress for single potential impact claypan site CP-S-PI-1, because there has been no increase in plant stress recorded for this site relative to baseline levels (**Figure 38**).

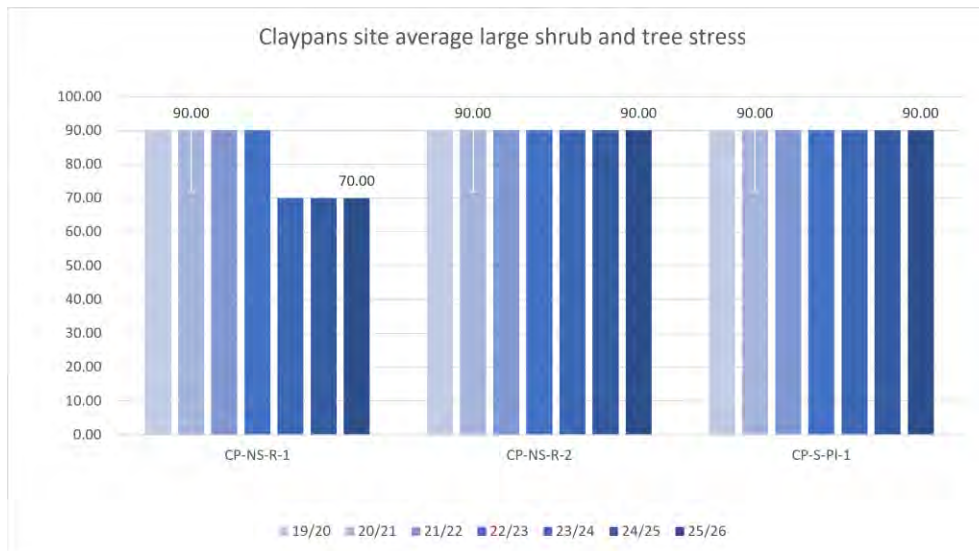


Figure 38. Change in average large shrub and tree stress for the claypan potential impact and reference sites.

8 Drainage Monitoring

Drainage monitoring targeted at abnormal erosion, flooding, and drying effects is conducted four times a year at each monitoring site, once in each season. The results of these monitoring rounds are summarised since the baseline monitoring commenced until autumn (May) 2026 (**Table 17**).

8.1 Inundation effects on TEC PEC

Project attributable indirect impacts and or reportable decline:

From autumn 2025 to autumn 2026, there have been no TEC PEC vegetation abnormally inundated or flooded for 24 hours as a result of the project activities since monitoring commenced. Consequently, there have been no project attributable indirect flooding or inundation impacts, when compared to preconstruction baseline conditions, to the Banksia woodland, Tuart woodland or Claypan TEC PEC.

8.2 Erosion effects on TEC PEC

Project attributable indirect impacts and or reportable decline:

From autumn 2025 to autumn 2026, there have been no project attributable indirect erosion impacts or reportable declines regarding erosion effects when compared to preconstruction baseline conditions for the Banksia woodland, Tuart woodland or Claypan TEC PEC.

8.3 Drying effects on TEC PEC

Abnormal impacts as a result of drying were observed in seven of the 14 monitoring sites in autumn 2024. Three Banksia woodland potential impact sites, one Banksia woodland reference site, two Tuart woodland potential impact sites, and one reference site. These sites recorded not new drying effects and are showing signs of recovery (**Table 17**).

There was concern that there may be further deterioration at the impacted sites in subsequent monitoring rounds, however this has not been the case and no additional vegetation drying or decline was observed at any of the sites. The Banksia and Tuart woodland vegetation has demonstrated signs of ongoing recovery, with epicormic regrowth remaining viable and relatively healthy across previously affected individuals (**Plate 19** and **Plate 20**). A summary of the impacts at these sites is provided in **Table 17**.

No potential impact or reference claypan sites showed any signs of stress from drying effects.

Project attributable indirect impacts and or reportable decline:

From autumn 2025 to autumn 2026, there has been no TEC PEC vegetation showing abnormal drying effects post construction.

Table 17. Summary of drainage monitoring sites and points for the Southern Project Area.

Number	Site Name	Drainage site _Effect (season year)	Issues in previous rounds	2022 Autumn	2022 Winter	2022 Spring	2023 Summer	2023 Autumn	Winter 2023	Spring 2023	Summer 2024	Autumn 2024
Date					26/05/ 2022	19/10/20 22	17/02/20 23	26/05/ 2023	24/08/ 2023	7/11/ 2023	16/02/ 2024	25/05/2024
Potential impact sites												
1	BW-S-PI-1	-	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	Drying effects
2	BW-S-PI-3	BW-S-PI- 3_D1 (w20)	Thinning of canopies in Marri	No issue canopy normal	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues
3	BW-S-PI-4	BW-S-PI- 4_D1 (w20)	Yellowing of leaves	No issue	No issues	New growth after winter rain	No issues	No issues	No issues	No issues	No issues	Drying effects
4	BW-S-PI-5	BW-S-PI- 5_D1 (w20)	<i>Eucalyptus marginata</i> , <i>Eucalyptus gomphocephala</i>	Drying effects on marri and jarrah	No issue in winter	Less stressed after rain	No issues	No issues	No issues	No issues	No issues	No issues
5	BW-S-PI-8	-	-	-	-	New site	No issue	No issues	No issues	No issues	No issues	Drying effects
6	CP-S-PI-1	-	No issue	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues
7	TW-S-PI-2	TW_S-PI- 2_D1 (w20)	Tuart thinning canopy	New tip growth. Looking healthier	No issues	No issues	No issues	No issues	No issues	No issues	No issues	Drying effects
8	TW-S-PI-3	-	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	Drying effects
9	TW-S-PI-4	-	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues

OFFICIAL

Number	Site Name	Drainage site _Effect (season year)	Issues in previous rounds	2022 Autumn	2022 Winter	2022 Spring	2023 Summer	2023 Autumn	Winter 2023	Spring 2023	Summer 2024	Autumn 2024
Reference sites												
1	BW-S-R-1	BW-S-R-1_D1 (w20)	Drought-affected site, thinning canopies in Jarrah and <i>Banksia attenuata</i>	No issues	No issues	Recovered after winter - no issues	No issues	No issues	No issues	No issues	No issues	No issues
2	BTW-S-R-1	BTW-S-R-1_D1 (a24)	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	Drying effects
3	BTW-S-R-2	BTW-S-R-2_D1 (a24)	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	Drying effects
4	CP-NS-R-1	CP-NS-R-1_D1(w20)	Evidence of yellowing of <i>X.p</i> Leaves across site - unknown cause - water table is high at site	No issue - autumn 2022, all leaves of <i>X.p</i> green.	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues
5	CP-NS-R-2	-	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues	No issues

OFFICIAL

Number	Site Name	Drainage site _Effect (season year)	2024 Winter	2024 Spring	2024/25 Summer	2025 Autumn	2025 Winter	2025 Spring	2025/26 Summer	2026 Autumn
			29/8/2024	31/10/2024	20/2/2025	23/5/2025	22/8/2025	30/9/2025	18/2/2026	25/5/2026
Potential impact sites										
1	BW-S-PI-1	-	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
2	BW-S-PI-3	BW-S-PI-3_D1 (w20)	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
3	BW-S-PI-4	BW-S-PI-4_D1 (w20)	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
4	BW-S-PI-5	BW-S-PI-5_D1 (w20)	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
5	BW-S-PI-8	-	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
6	CP-S-PI-1	-	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
7	TW-S-PI-2	TW_S-PI-2_D1 (w20 a24)	Ongoing drying effects	Recovery Epicormic growth	Stable	Stable	Stable	No issue	No issue	*No issue
8	TW-S-PI-3	-	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
9	TW-S-PI-4	-	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
Reference sites										
1	BW-S-R-1	BW-S-R-1_D1 (w20)	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue

OFFICIAL

Number	Site Name	Drainage site _Effect (season year)	2024 Winter	2024 Spring	2024/25 Summer	2025 Autumn	2025 Winter	2025 Spring	2025/26 Summer	2026 Autumn
2	BTW-S-R-1	BTW-S-R-1_ D1 (a24)	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
3	BTW-S-R-2	BTW-S-R-2_ D1 (a24)	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
4	CP-NS-R-1	CP-NS-R-1_ D1(w20)	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue
5	CP-NS-R-2	-	No issue	No issue	No issue	No issue	No issue	No issue	No issue	No issue

*TW-S-PI-2 site report (autumn 2026) for this site showing recovery from drying effect in 2024 **Appendix 6**.



Plate 19. Ongoing drying effects from autumn 2024, with trees showing signs of recovery with epicormic growth.



Epicormic growth in spring 2024.



Plate 20. Epicormic growth and recovery in autumn 2025

and



autumn 2026.

8.4 Phytophthora Dieback

Phytophthora cinnamomi is a microscopic, soil borne plant pathogen which impacts about 40% of native vegetation in the Southwest of WA. Impacts on vegetation from *Phytophthora cinnamomi*, referred to as Phytophthora dieback, may appear similar in appearance to impacts of drying but Phytophthora dieback can usually be distinguished from drying and other plant stressors by its rapid impact on Phytophthora sensitive plants, normally occurring at the end of the summer and dry period.

Impact from Phytophthora dieback was assessed as part of standard vegetation monitoring undertaken at all monitoring locations with four scales of impact being recorded:

1. Low impact: 1-2 plants
2. Medium impact: active front visible, some death
3. Heavy impact: active front visible, lots of death
4. Old impact site: vegetation structure altered.

Ten monitoring points were recorded with Phytophthora dieback during the baseline monitoring period. These impacts were mostly recorded in Banksia Woodland, with relatively little observed impact within the Banksia/Tuart Woodland and no evidence recorded in the Claypan sites. This is not unusual as the Banksia/Tuart Woodland, which typically occurs on more alkaline soils which is not favoured by *Phytophthora cinnamomi*.

There was no change in the number of photo points recorded to have symptoms of Phytophthora dieback relative to baseline monitoring levels. A breakdown of impacts from Phytophthora dieback at each monitoring site is provided in **Table 18**.

Table 18. Breakdown of observed impacts of Phytophthora dieback per monitoring sites in autumn 2025, relative to Autumn 2022 baseline levels.

Site	Aut 22	Aut 26	Aut 22	Aut 26	Aut 22	Aut 26	Aut 22	Aut 26	Aut 22	Aut 26	Total Photopoints
	Low	Low	Medium	Medium	Heavy	Heavy	Old*	Old*	Site total	Site total	
Potential impact sites											
BW-S-PI-1	-	-	-	-	-	-	-	-	0	0	5
BW-S-PI-3	-	-	-	-	-	-	4	4	4	4	7
BW-S-PI-4	1	1	-	-	-	-	-	-	1	1	4
BW-S-PI-5	1	1	2	2	-	-	-	-	3	3	34
BW-S-PI-8	-	-	-	-	-	-	-	-	0	0	8
CP-S-PI-1	-	-	-	-	-	-	-	-	0	0	3
TW-S-PI-2	-	-	-	-	-	-	-	-	0	0	20
TW-S-PI-3	-	-	-	-	-	-	-	-	0	0	4
TW-S-PI-4	-	-	-	-	-	-	-	-	0	0	3
Reference sites											
BW-S-R-1	-	-	2	2	-	-	-	-	2	2	4
BTW-S-R-1	-	-	-	-	-	-	-	-	0	0	2
BTW-S-R-2	-	-	-	-	-	-	-	-	0	0	2
CP-NS-R-1	-	-	-	-	-	-	-	-	0	0	2
CP-NS-R-2	-	-	-	-	-	-	-	-	0	0	2
Totals	2	2	4	4	0	0	4	4	10	10	100

* The site is devoid of *P. cinnamomi*-susceptible species and therefore, *P. cinnamomi* is not perceived to be actively causing death.

9 Conclusion

This 2026 TEC PEC annual monitoring report compares results from the preconstruction baseline monitoring undertaken between spring of 2019 and summer of 2020 with all subsequent monitoring rounds completed before the end of this reporting period on May 31, 2026.

The results of this monitoring show that there were no Project attributable indirect impacts or reportable declines associated with any of the monitored occurrences of Banksia Woodland TEC PEC, Claypan TEC or Tuart Woodland TEC PEC for any of the monitored variables, including: weed diversity or cover, native diversity or cover, plant stress, erosion, inundation, or drying since baseline monitoring commenced in spring of 2019.

The widespread effects of the record-breaking driest summer and autumn of 2023/24 were still evident across most of the monitoring sites. The concerns that the impacts of the drought would continue and result in worsening impacts at the site have not eventuated, as the above-average (2024) and average (2025) rainfall that followed the drought have limited further impact, with only a few of the monitored points recording increases in stress.

10 Digital tools

Report

Ecoedge uses Grammarly (Pro) to review and edit written language structure.

Artificial intelligence (AI)

ChatGPT(GO) was used to assist with the mail merge of Fulcrum data to match the 132 photos to the unique Fulcrum ID number **Appendix 2**. This data import was checked by D. Brace.

No confidential, personal, or sensitive project information was intentionally disclosed during the use of AI, and Ecoedge retains full responsibility for the report content and conclusions.

Photographs

Mobile phones and digital cameras were used to take photographs. All photos have been taken by C. Spencer, B. Eckemann or D. Brace, unless otherwise specified

Data collection

Fulcrum, Maps Plus, and handheld GPS.

11 References

BORR Team (2019). BORR Baseline TEC/PEC Vegetation Monitoring Scope.

BORR Team (2020). TEC Vegetation Monitoring Program, Appendix I. Updated Environmental Referral Supporting Document and Additional Information REV 2.

Bureau of Meteorology (2024a). Drought, Rainfall deficiencies and water availability. Below average soil moisture in the south. <http://www.bom.gov.au/climate/drought/archive/20240506.archive.shtml#tabs=Soil-moisture>

Bureau of Meteorology (2024b). Drought, Rainfall deficiencies and water availability at the end of April. <http://www.bom.gov.au/climate/drought/archive/20241205.archive.shtml#tabs=Summary>

Bureau of Meteorology (2024c). Drought, Rainfall deficiencies and water availability at the end of November. <http://www.bom.gov.au/climate/drought/archive/20241205.archive.shtml#tabs=Summary>

Bureau of Meteorology (BOM) (2025). Climate Data Online, Bunbury Weather Station, Station No. 9965, <http://www.bom.gov.au/climate/data/index.shtml>

Bureau of Meteorology (BOM) (2026). Climate Data Online, Bunbury Weather Station, Station No. 9965, <http://www.bom.gov.au/climate/data/index.shtml>

Ecoedge (2023) Bunbury Outer Ring Road Southern Project Area Threatened and Priority Ecological Communities Vegetation and Drainage Monitoring Baseline Report. Prepared for the South West Gateway Alliance.

Ecoedge (2024) Bunbury Outer Ring Road Southern Project Area Threatened and Priority Ecological Communities Vegetation and Drainage Monitoring Baseline Report. Prepared for the South West Gateway Alliance.

Ecoedge (2025) Bunbury Outer Ring Road Southern Project Area Threatened and Priority Ecological Communities Vegetation and Drainage Monitoring Baseline Report. Prepared for Main Roads of Western Australia.

Environmental Protection Authority of WA (2016). *Technical Guidance Flora and Vegetation Surveys for Environmental Impact*. EPA, Perth, Western Australia. [http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA_Technical_Guidance - Flora and Vegetation survey](http://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/EPA_Technical_Guidance_-_Flora_and_Vegetation_survey)

Keighery, B. (1994). *Bushland Plant Survey, A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc.).

Main Roads (2022) Bunbury Outer Ring Road – Southern Section Vegetation Management Plan

Northern Agricultural Catchments Council (2014). *Using Photomon for Monitoring Environmental Change*. <https://www.nacc.com.au/wp-content/uploads/2015/05/Photomon-Users-Guide.pdf>

NVIS Technical Working Group (2017) *Australian Vegetation Attribute Manual: National Vegetation Information System, Version 7.0*. Department of the Environment and Energy, Canberra. Prep by Bolton, M.P., deLacey, C. and Bossard, K.B. (Eds).

12 Appendices

Appendix 1. Location of current boundary and transect photopoints, with current and baseline vegetation condition, percentage cover for weeds and native plants at site, baseline 2022 and 2026.

Maps are arranged in order from north to south of their location within the BORR southern section referral area.

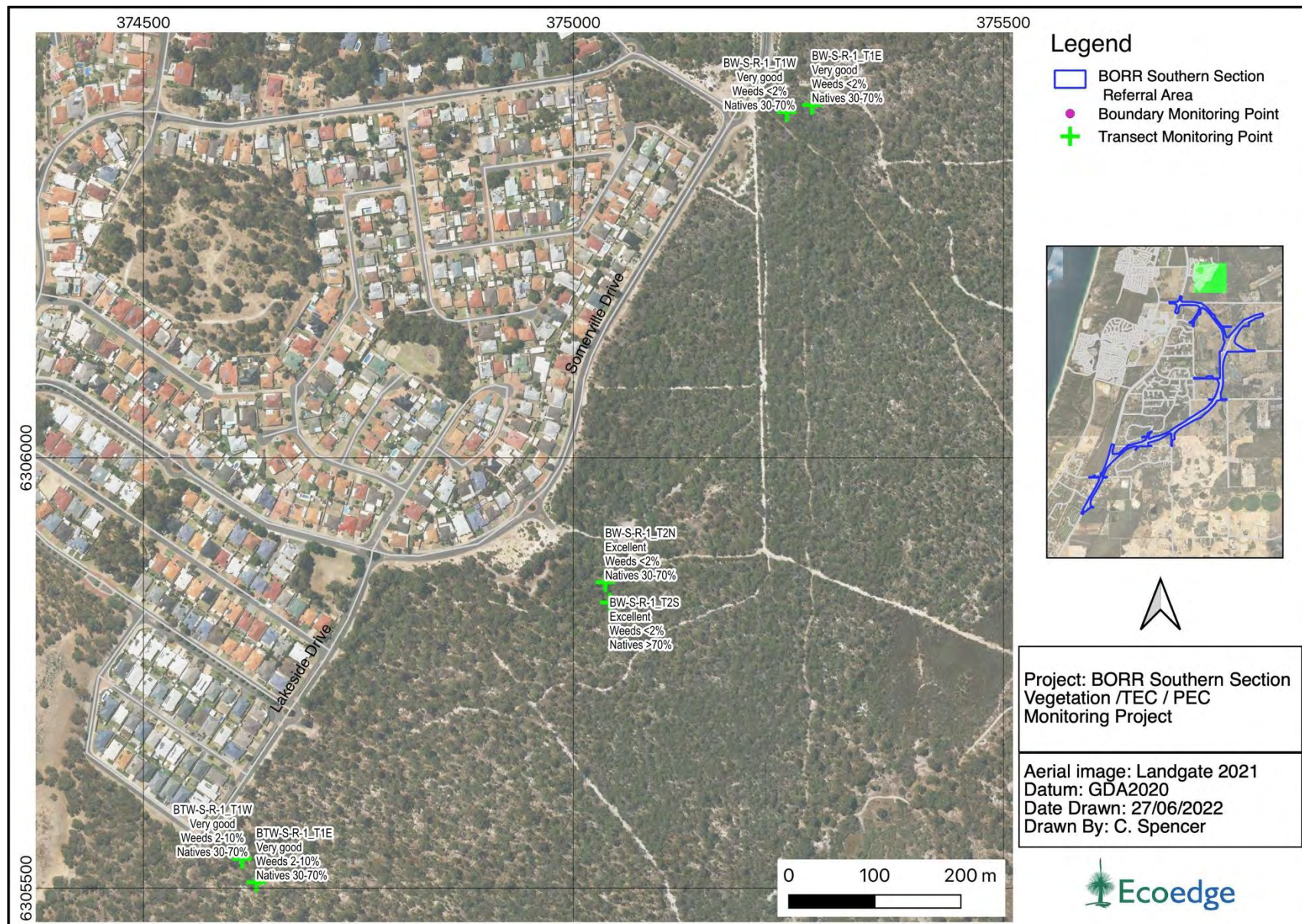


Figure 1. Baseline reference site BW-S-R-1 and BTW-S-R-1 vegetation condition, weed and native cover.

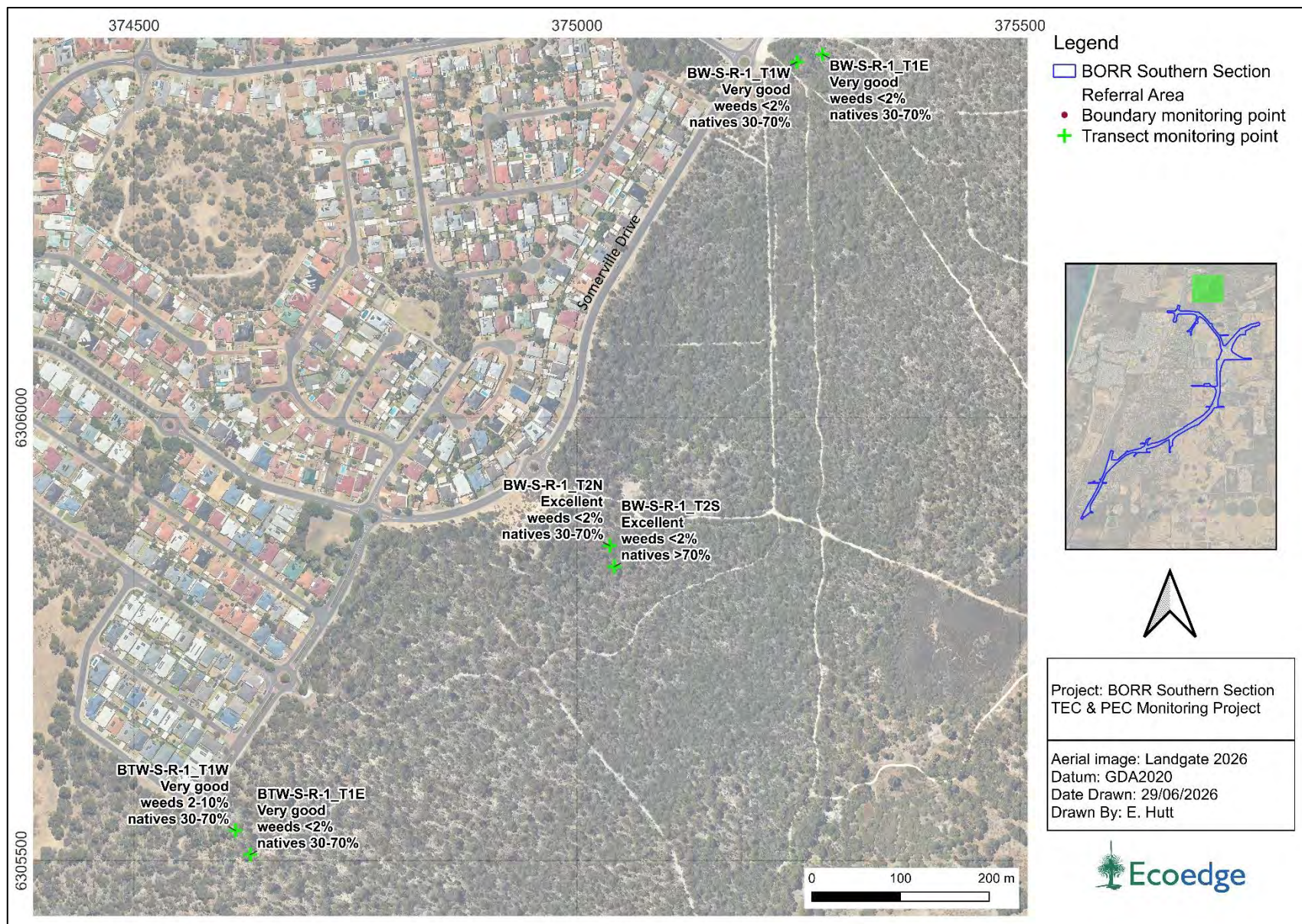


Figure 2. 2026 reference site BW-S-R-1 and BTW-S-R-1 vegetation condition, weed and native cover.

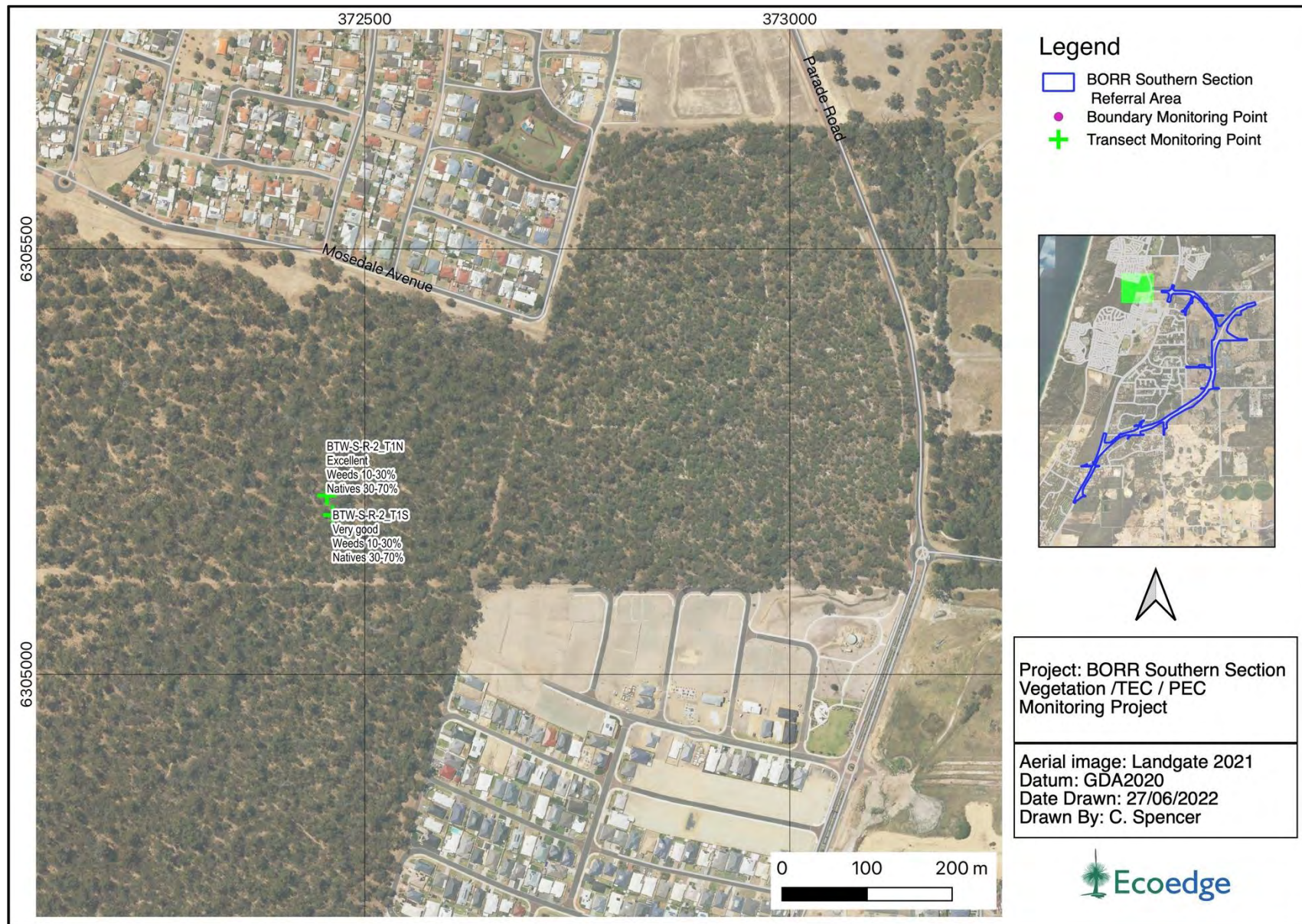


Figure 3. Baseline reference site BTW-S-R-2 vegetation condition, weed and native cover.

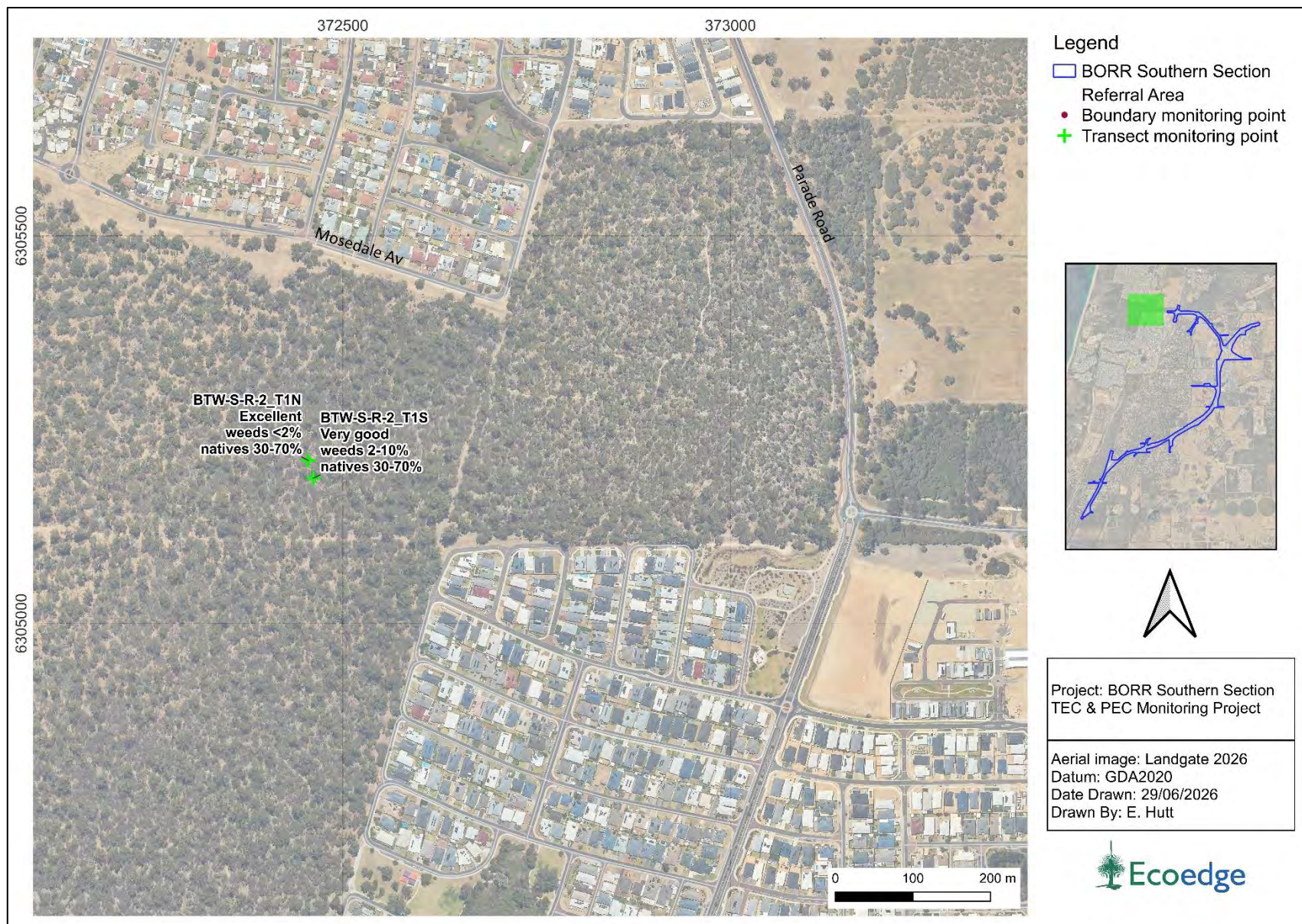


Figure 4. 2026 reference site BTW-S-R-2 vegetation condition, weed and native cover.

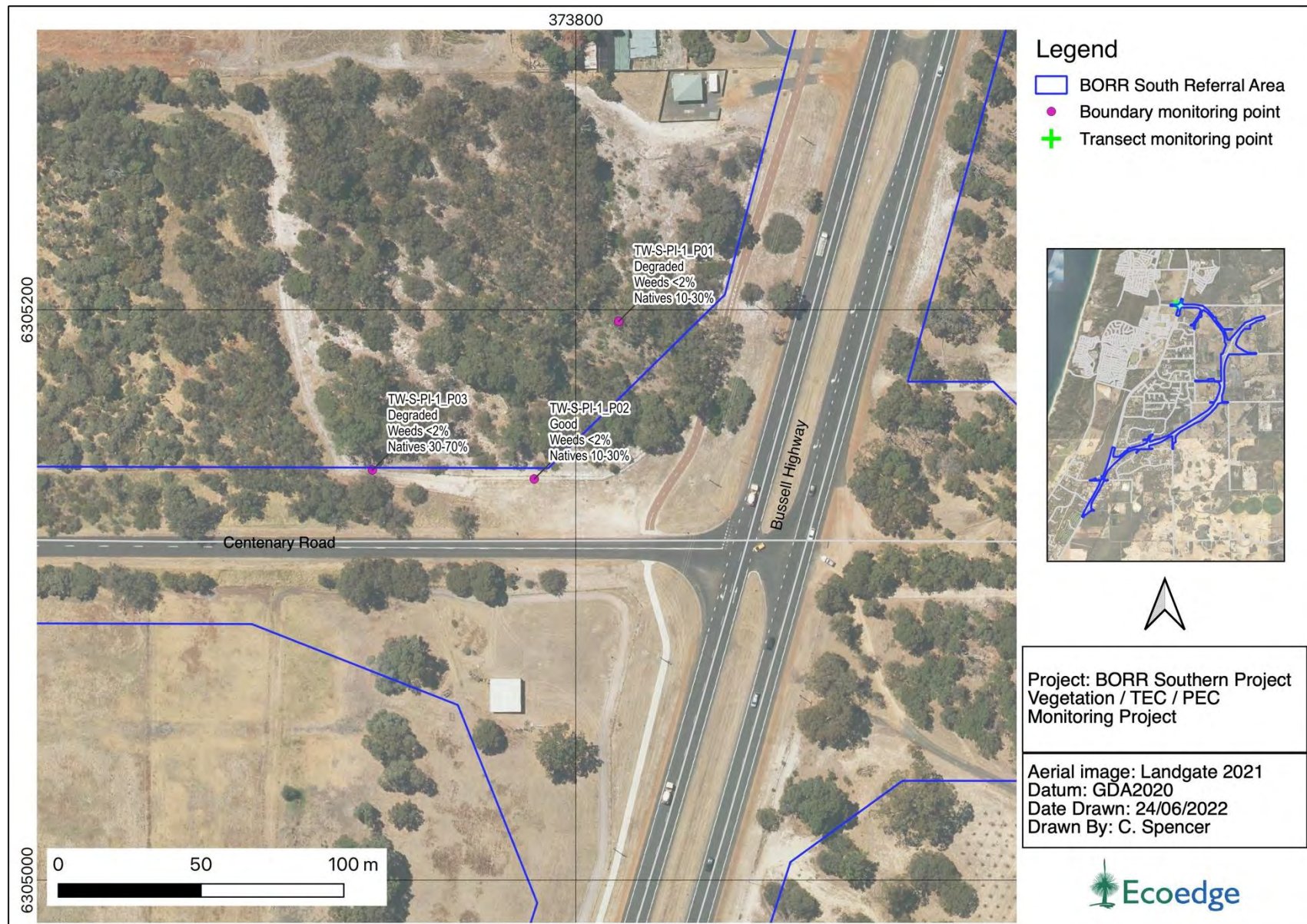


Figure 5. Baseline potential impact site TW-S-PI-1 vegetation condition, weed and native cover.

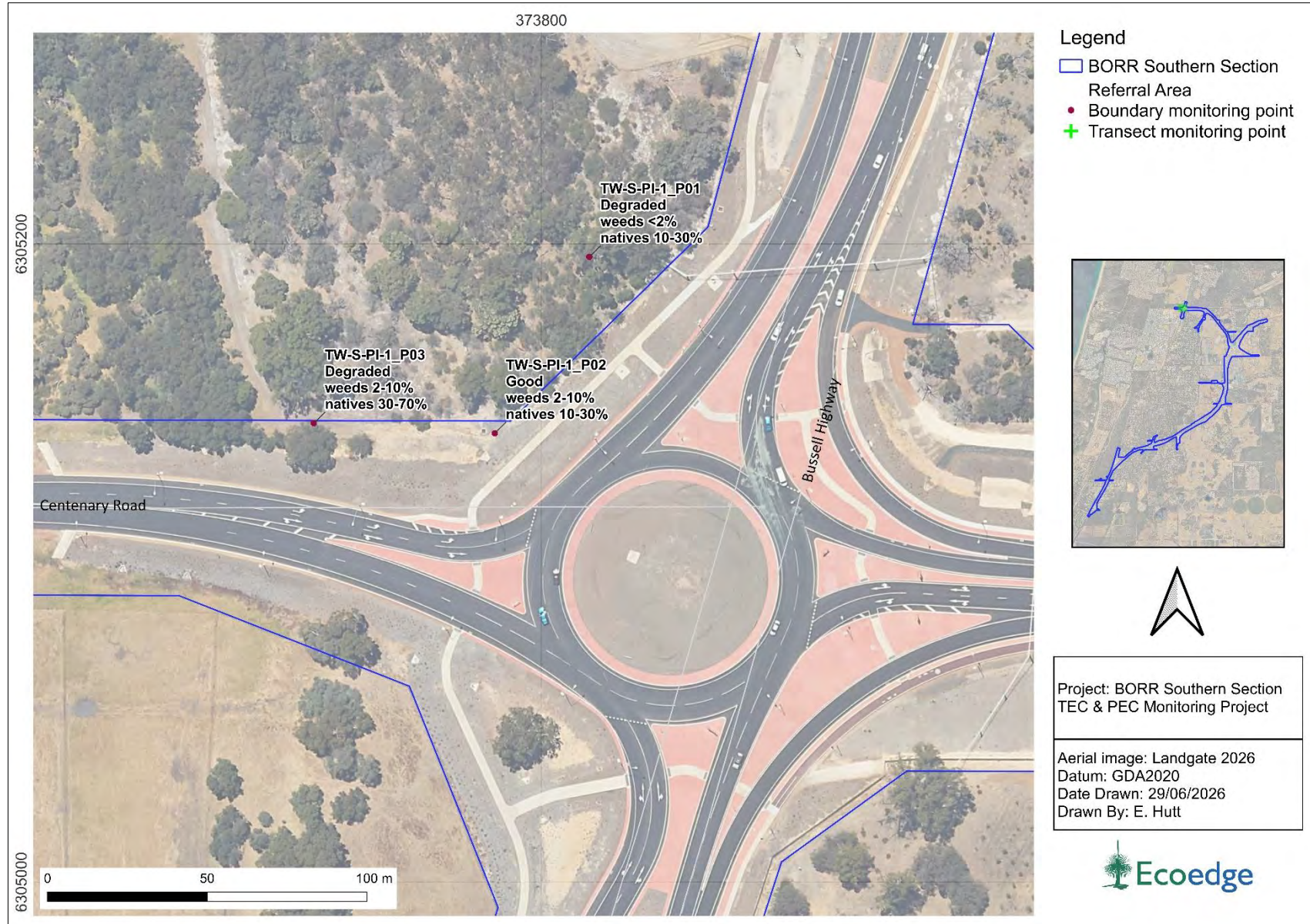


Figure 6. 2026 potential impact site TW-S-PI-1 vegetation condition, weed and native cover.

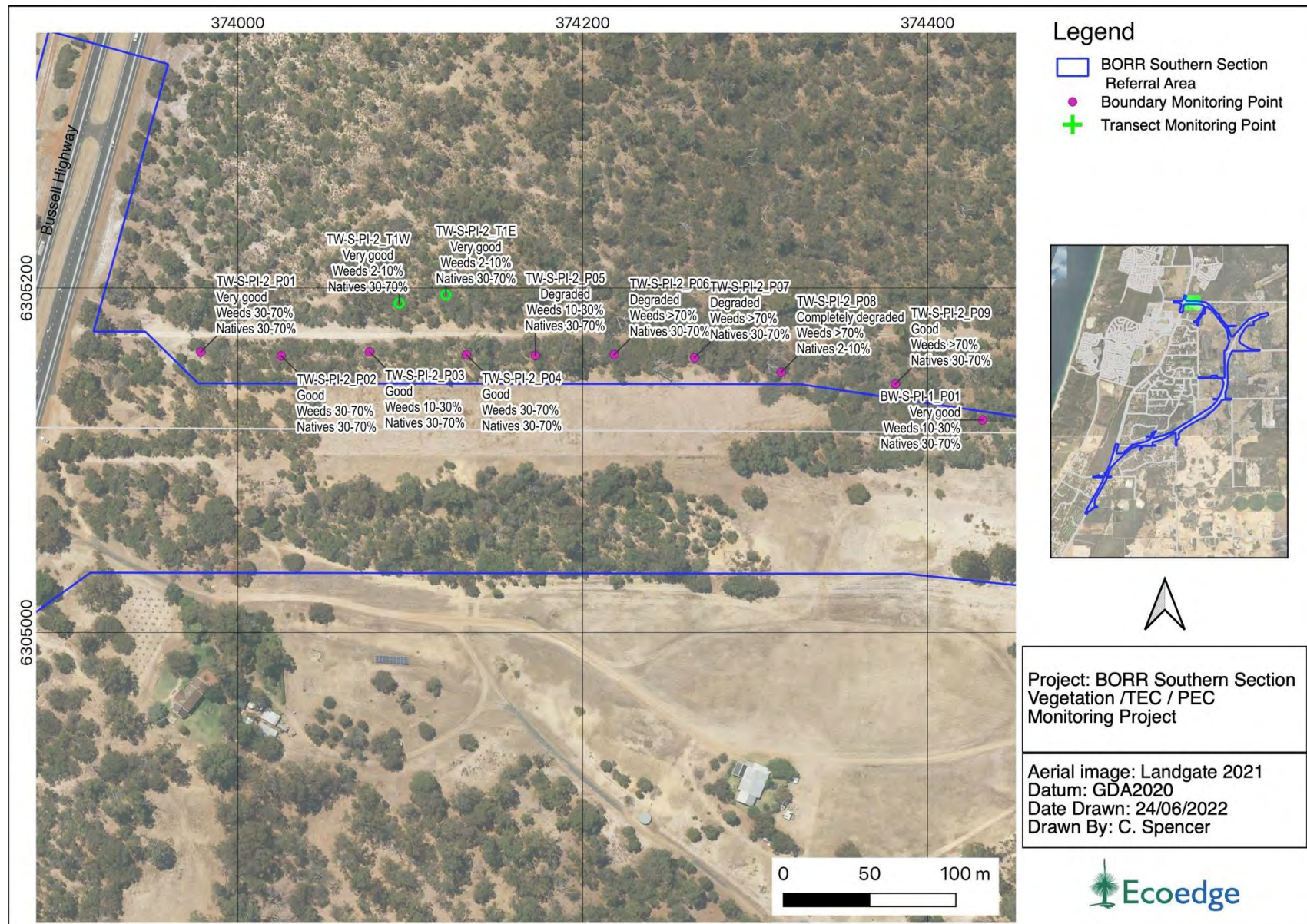


Figure 7. Baseline potential impact site TW-S-PI-2 vegetation condition, weed and native cover.

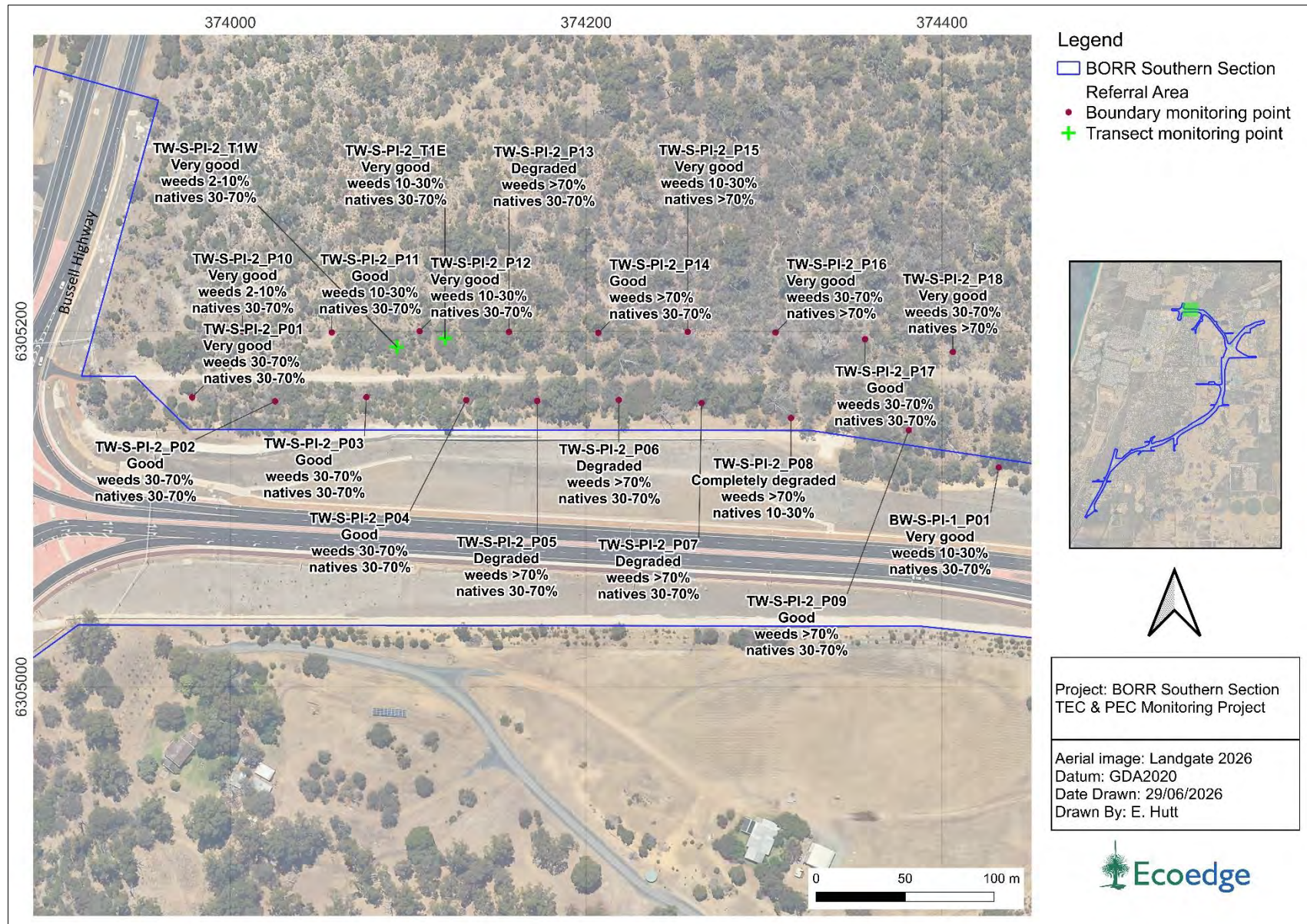


Figure 8. 2026 potential impact site TW-S-PI-2 vegetation condition, weed and native cover.

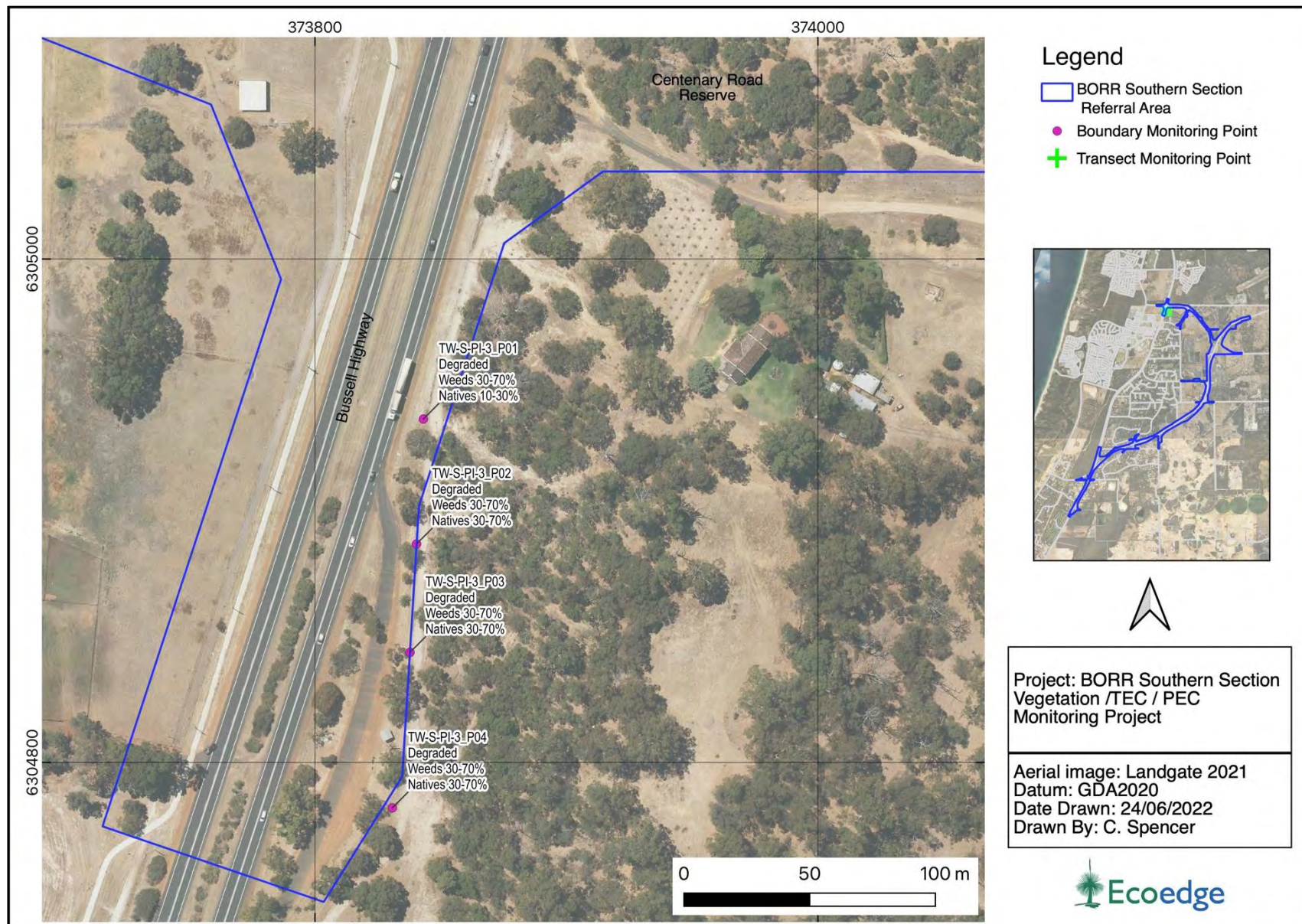


Figure 9. Baseline potential impact site TW-S-PI-3 vegetation condition, weed and native cover.

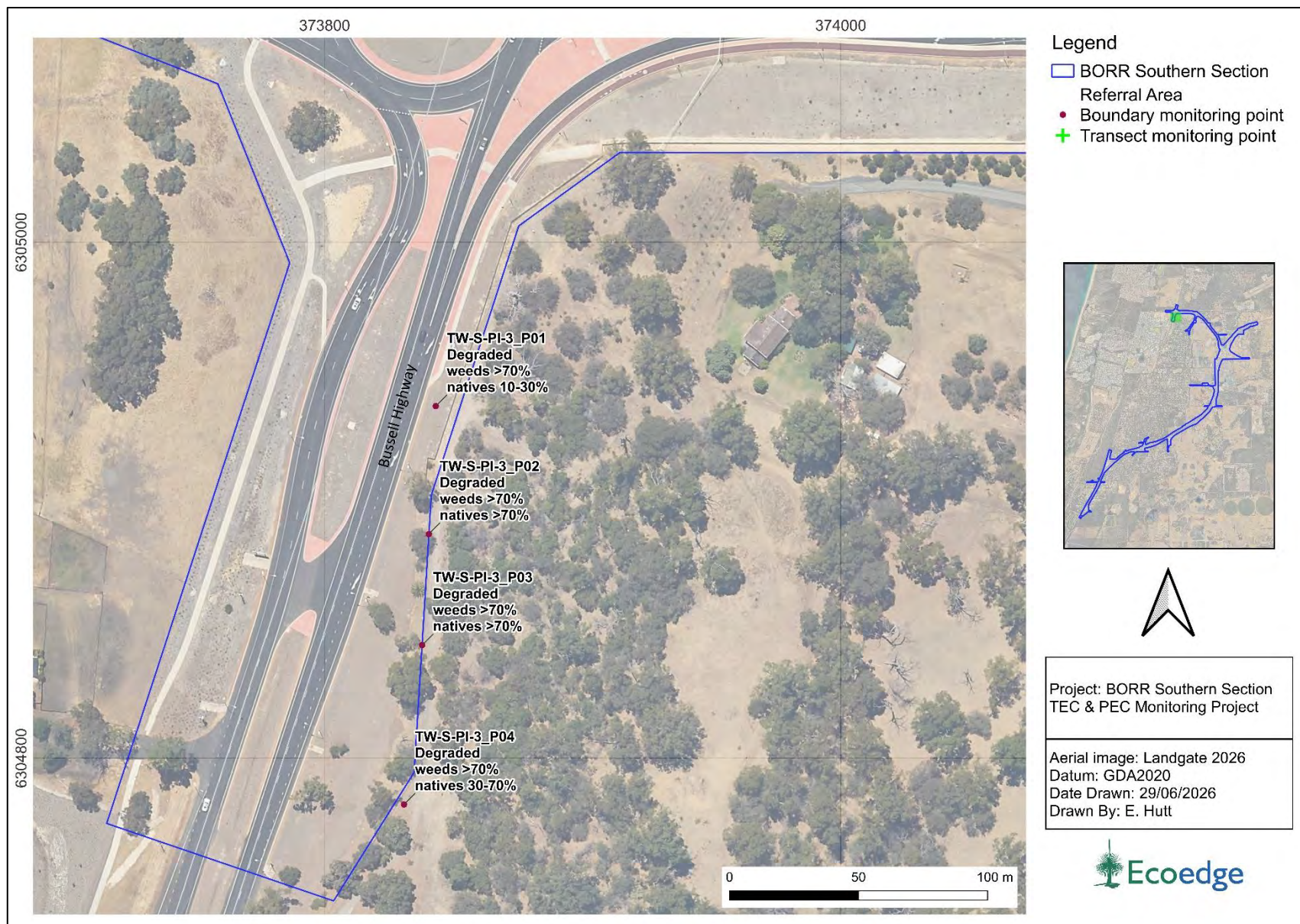


Figure 10. 2026 potential impact site TW-S-PI-3 vegetation condition, weed and native cover.

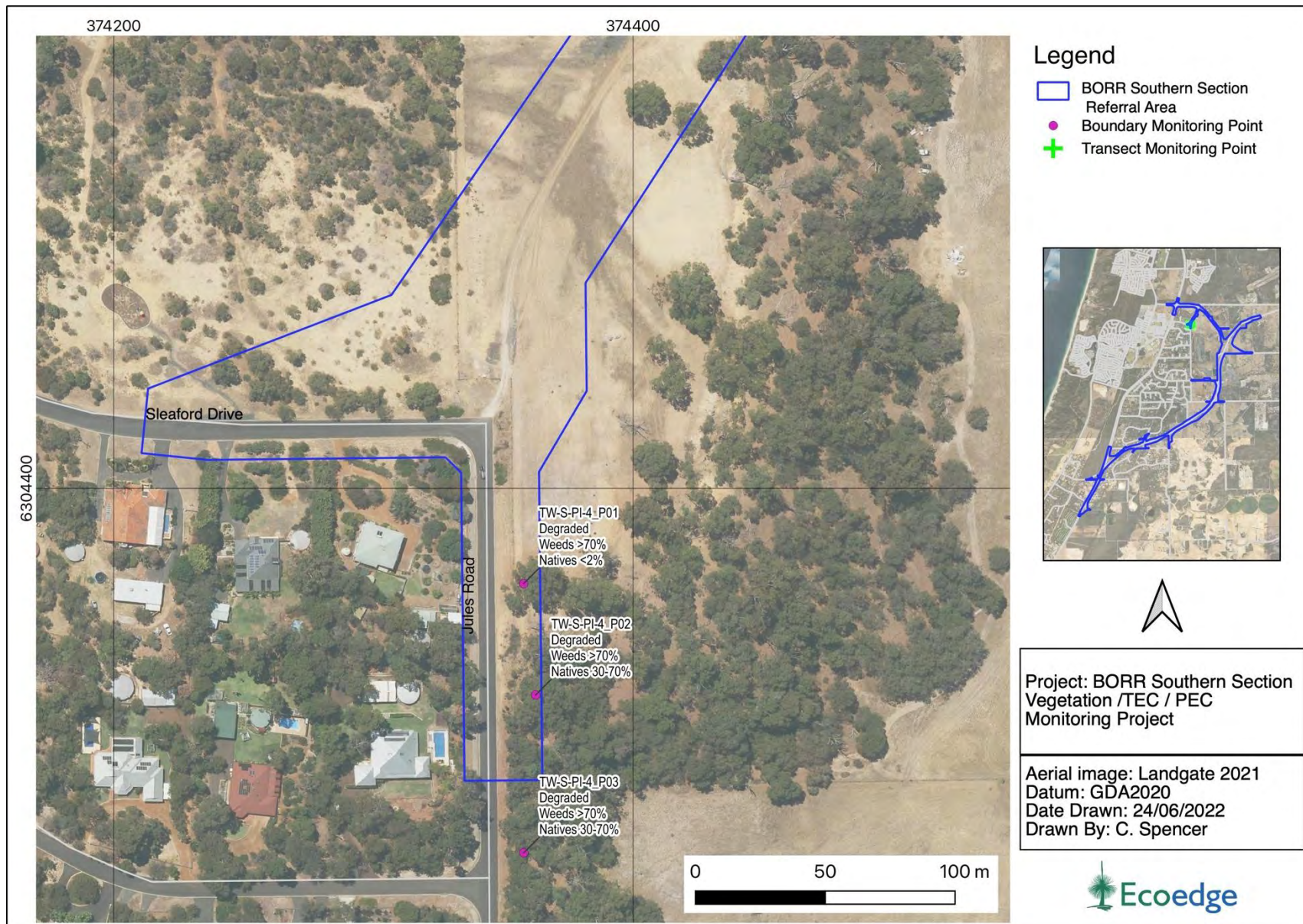


Figure 11. Baseline potential impact site TW-S-PI-4 vegetation condition, weed and native cover.

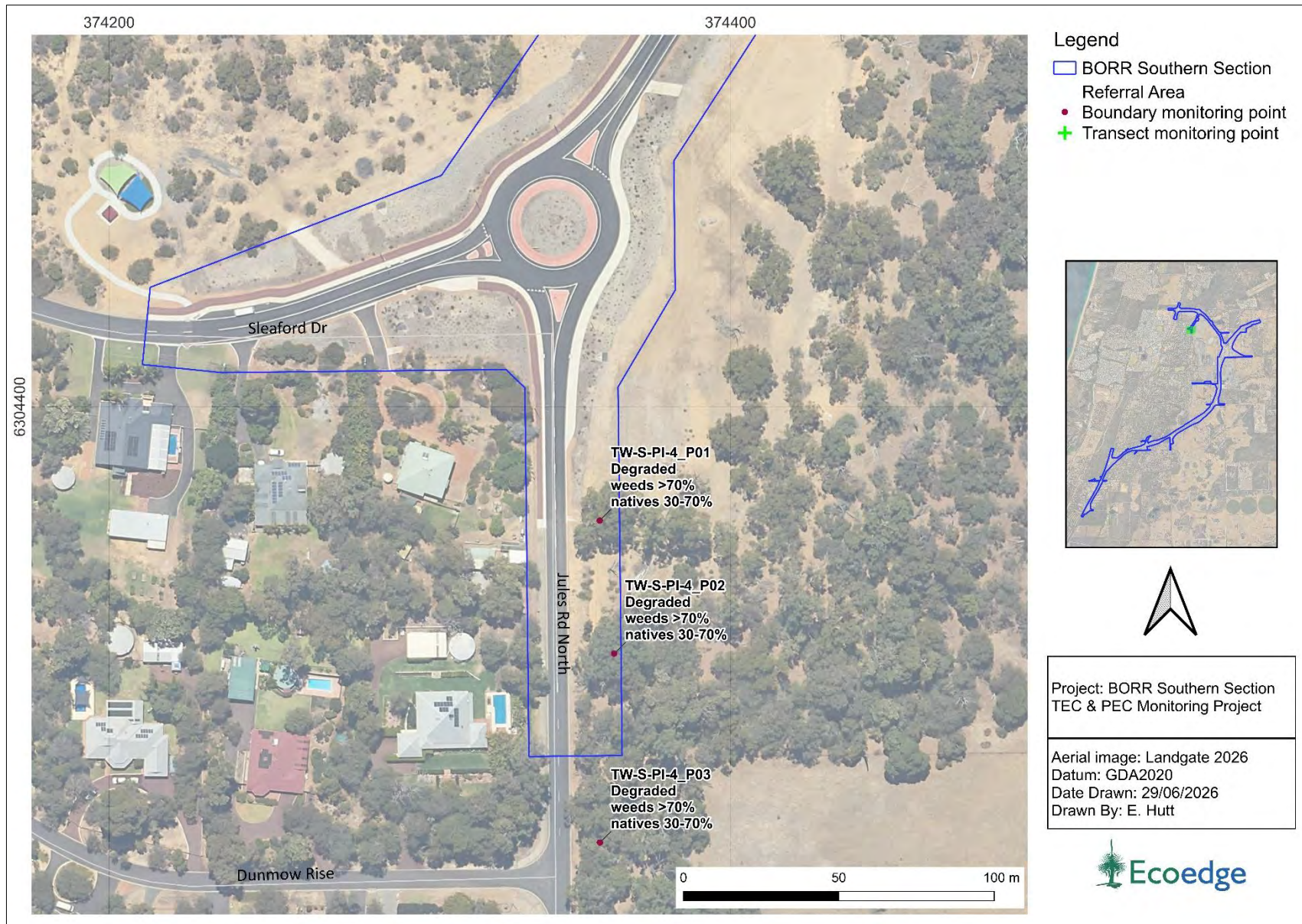


Figure 12. 2026 potential impact site TW-S-PI-4 vegetation condition, weed and native cover.

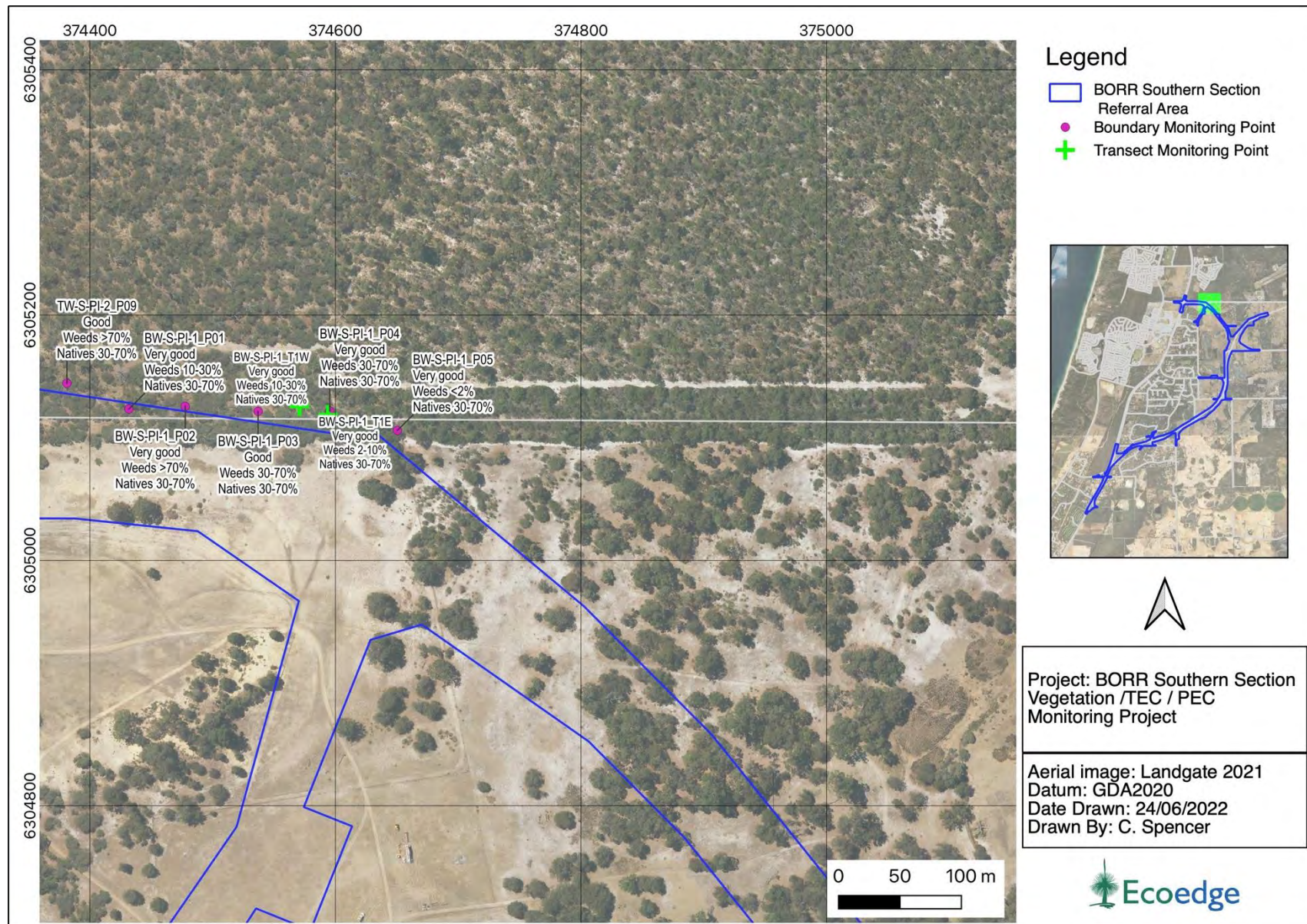


Figure 13. Baseline potential impact site BW-S-PI-1 vegetation condition, weed and native cover.

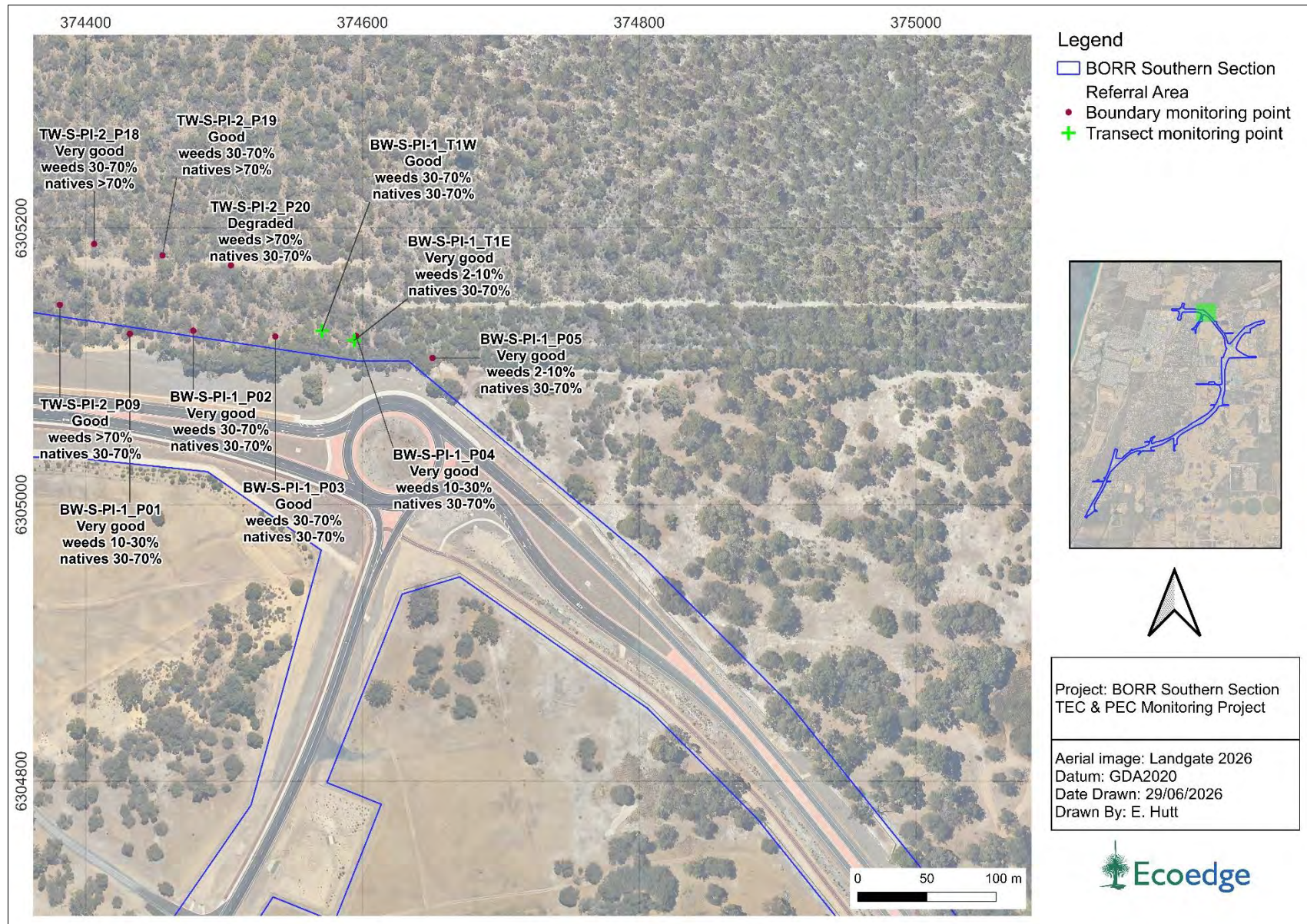
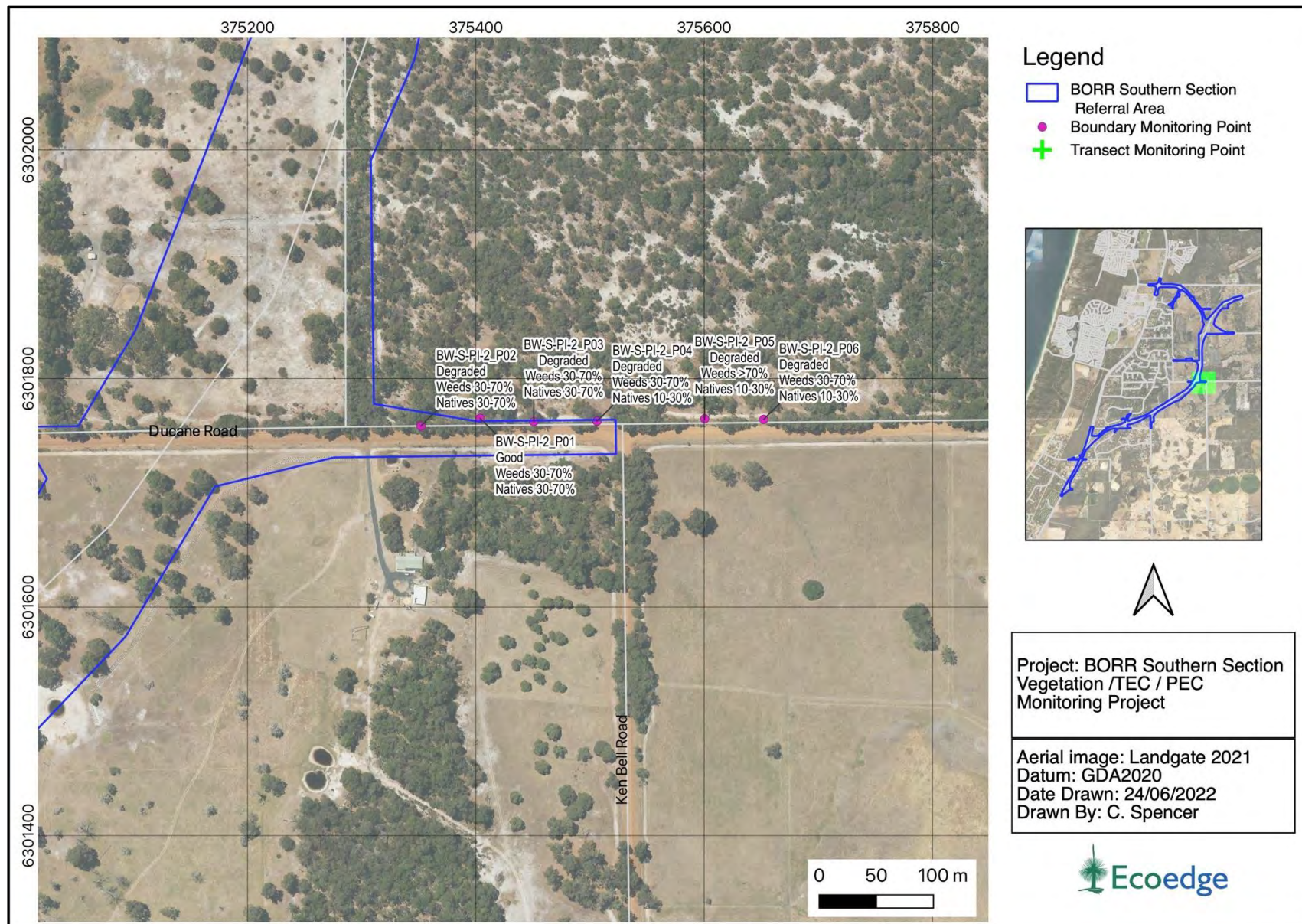


Figure 14. 2026 potential impact site BW-S-PI-1 vegetation condition, weed and native cover.



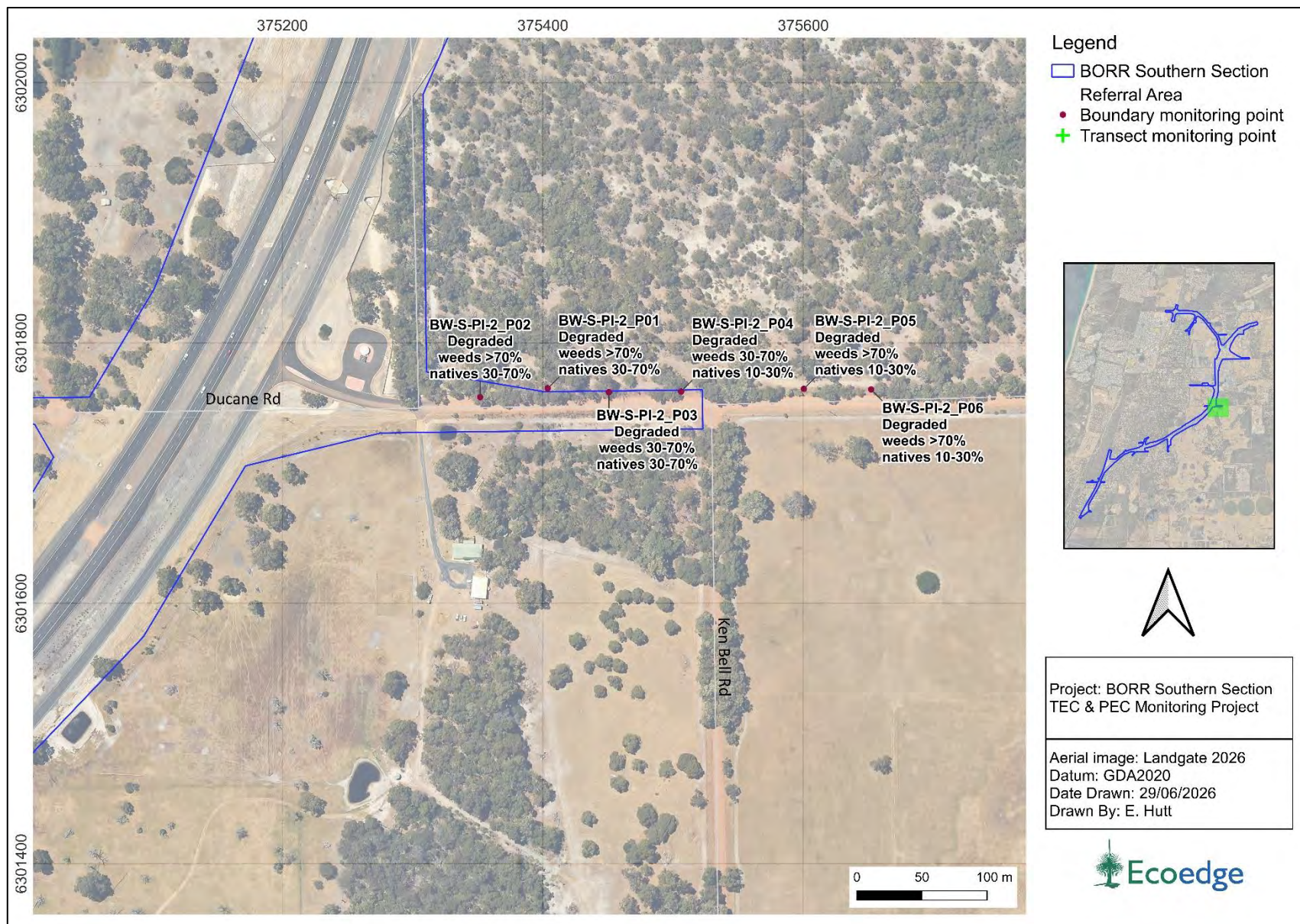


Figure 16. 2026 potential impact site BW-S-PI-2 vegetation condition, weed and native cover.

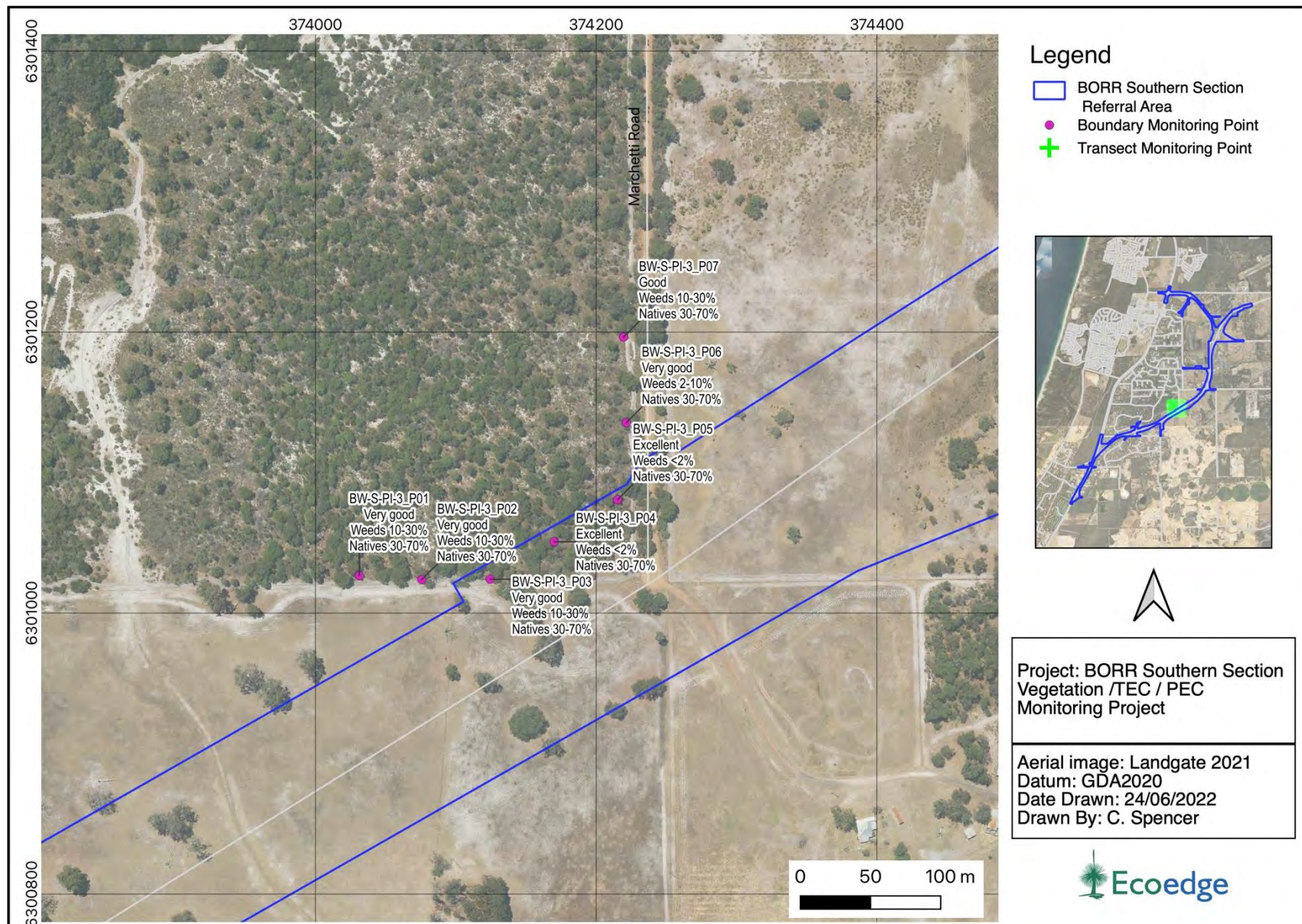


Figure 17. Baseline potential impact site BW-S-PI-3 vegetation condition, weed and native cover.

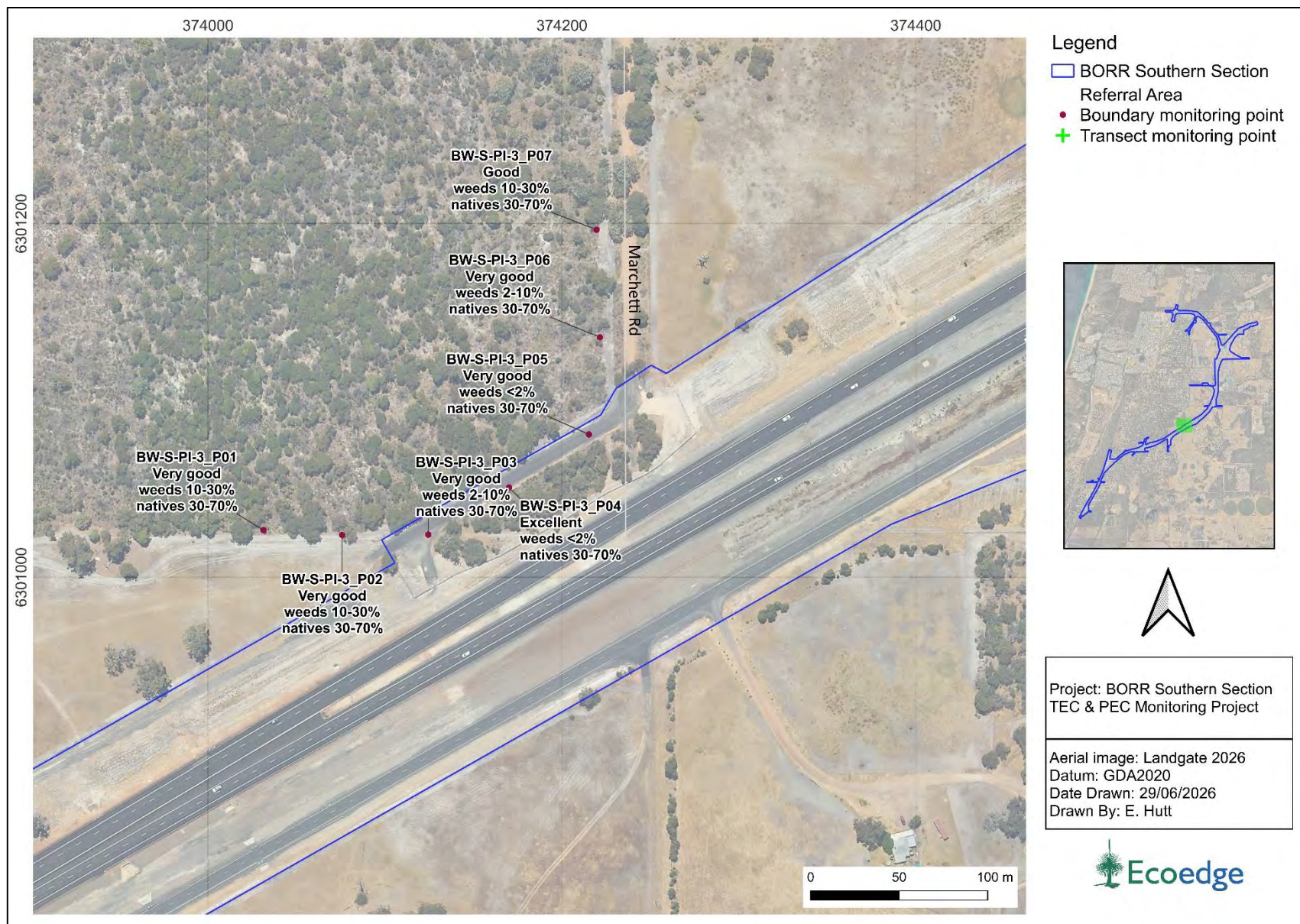


Figure 18. 2026 potential impact site BW-S-PI-3 vegetation condition, weed and native cover.

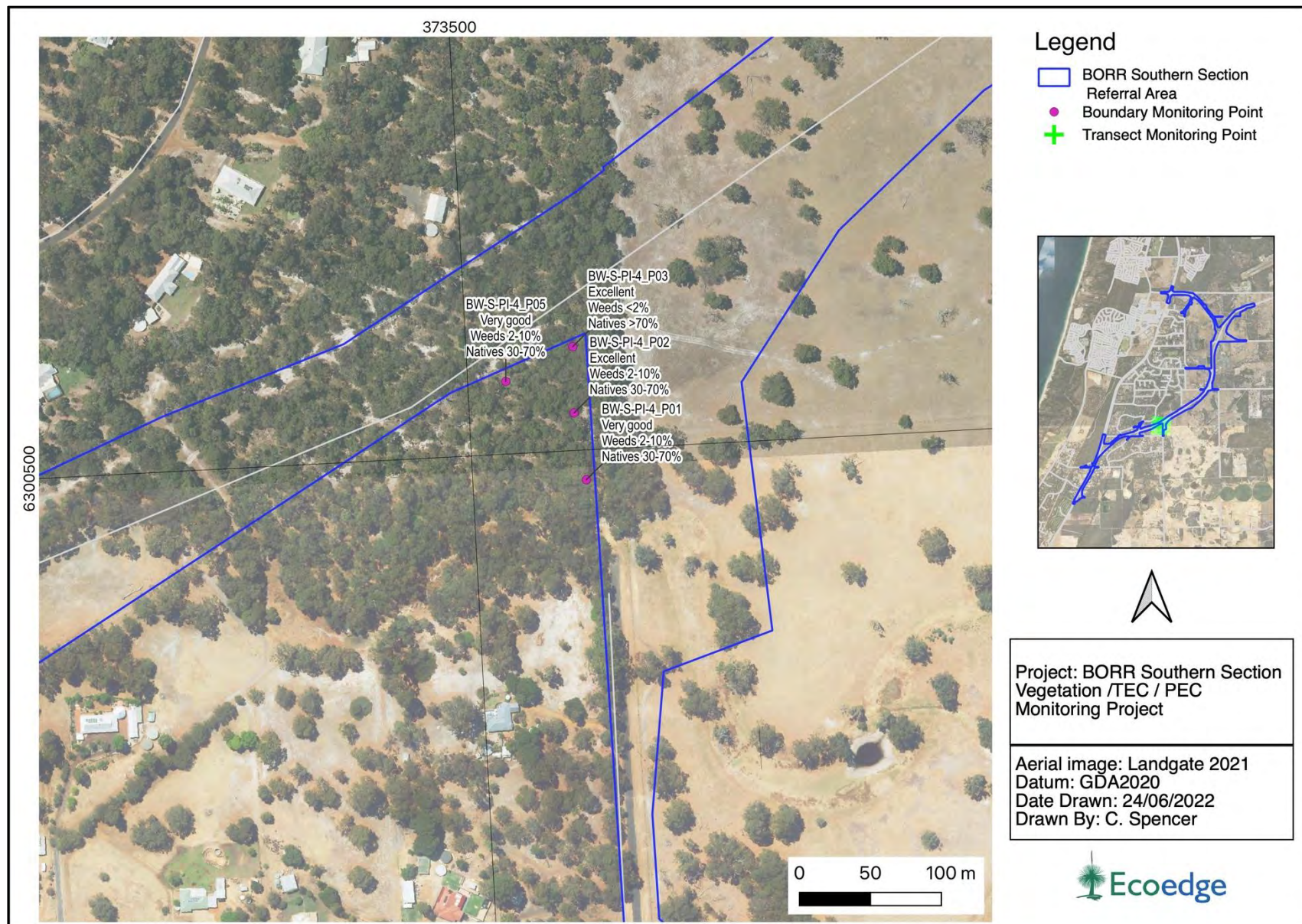


Figure 19. Baseline potential impact site BW-S-PI-4 vegetation condition, weed and native cover.

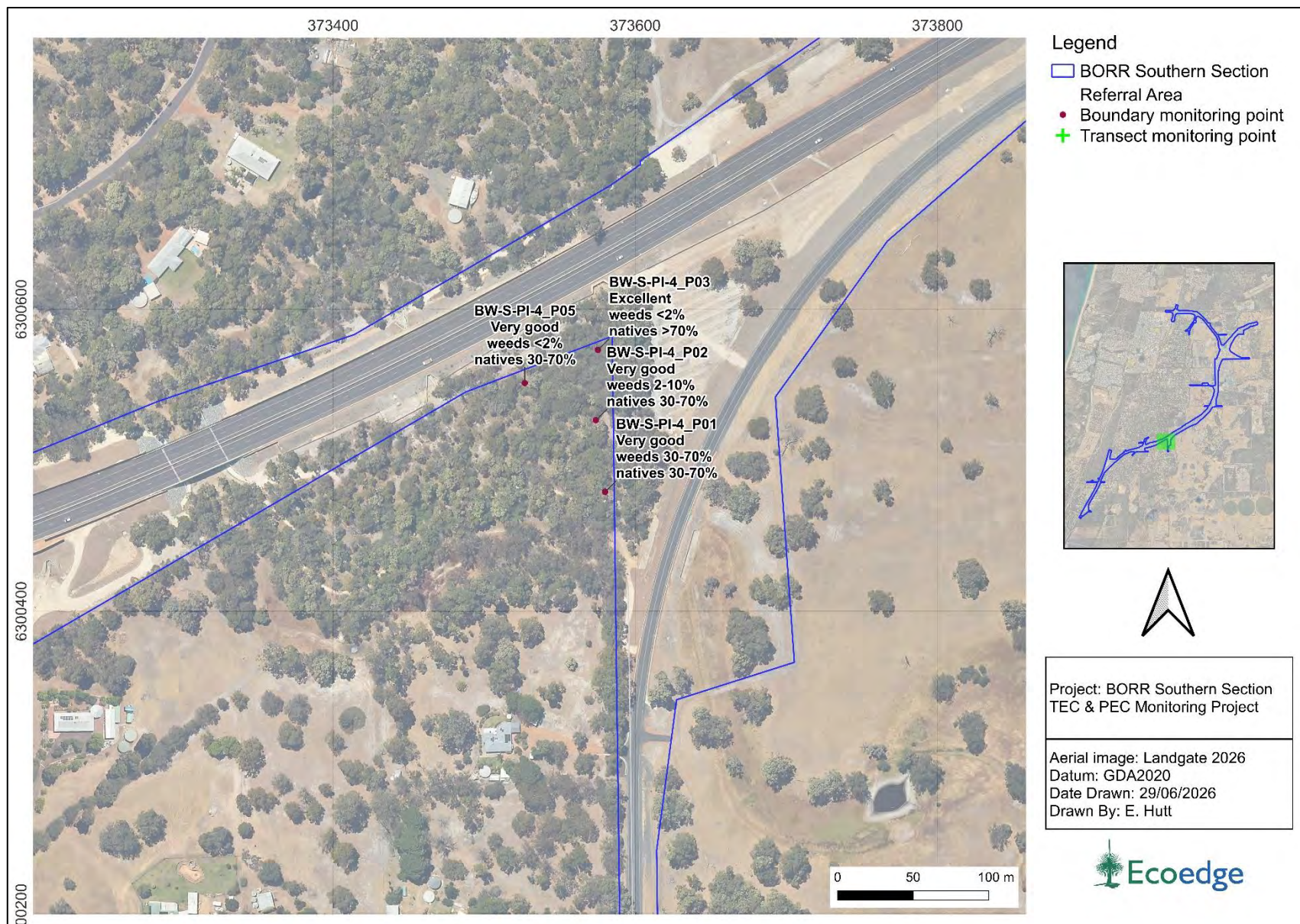


Figure 20. 2026 potential impact site BW-S-PI-4 vegetation condition, weed and native cover.

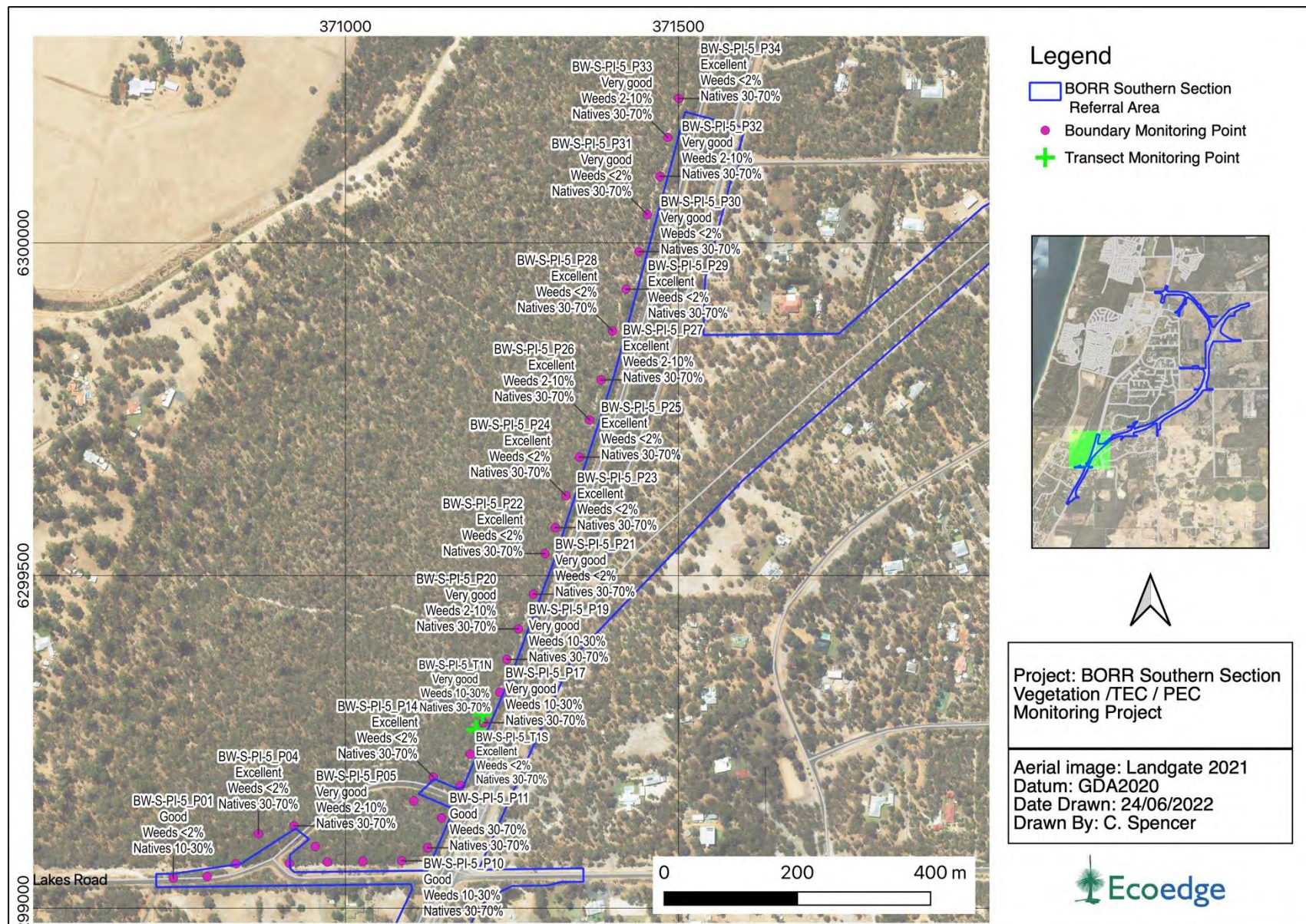


Figure 21. Baseline potential impact site BW-S-PI-5 vegetation condition, weed and native cover.

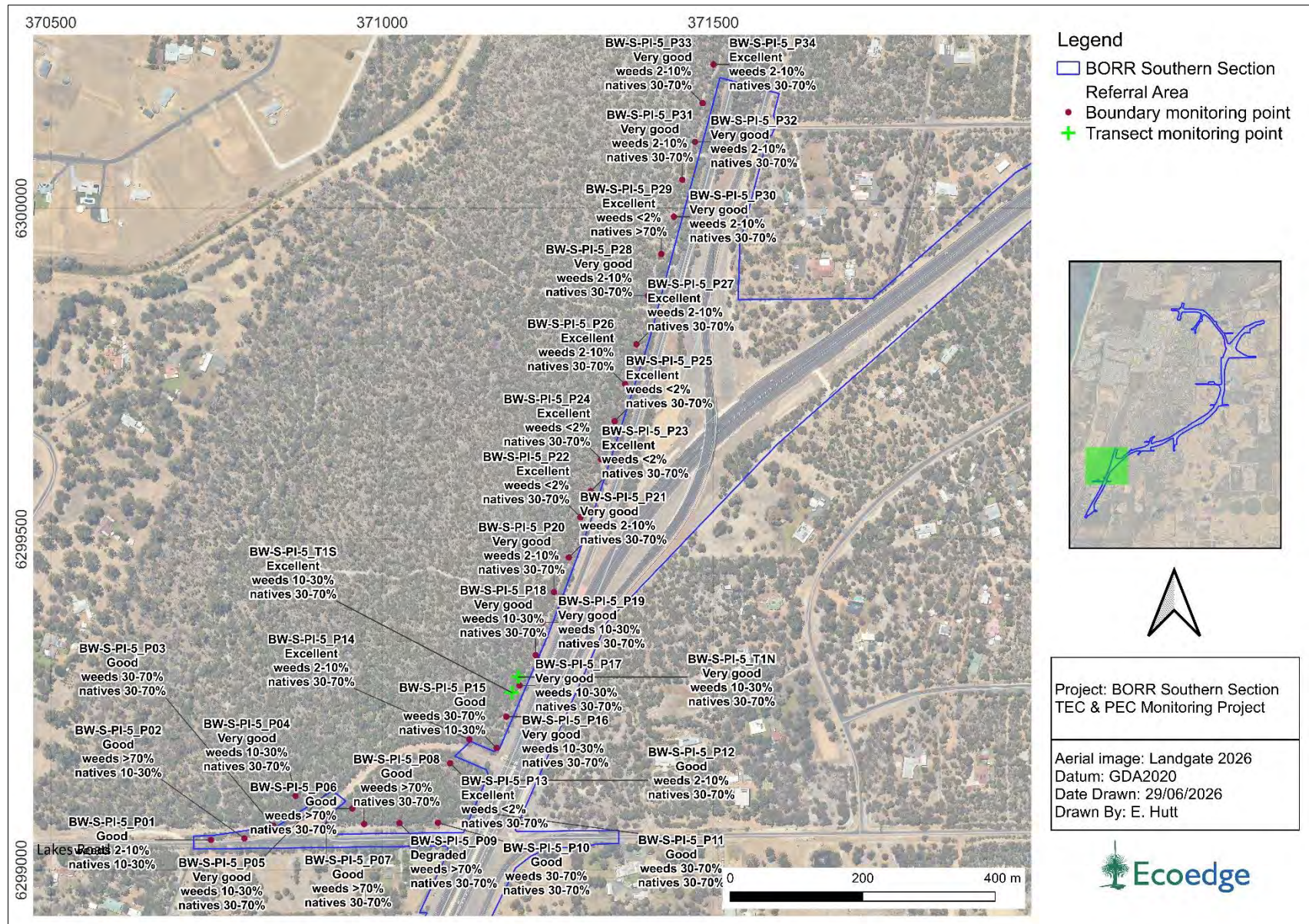


Figure 22. 2026 potential impact site BW-S-PI-5 vegetation condition, weed and native cover.

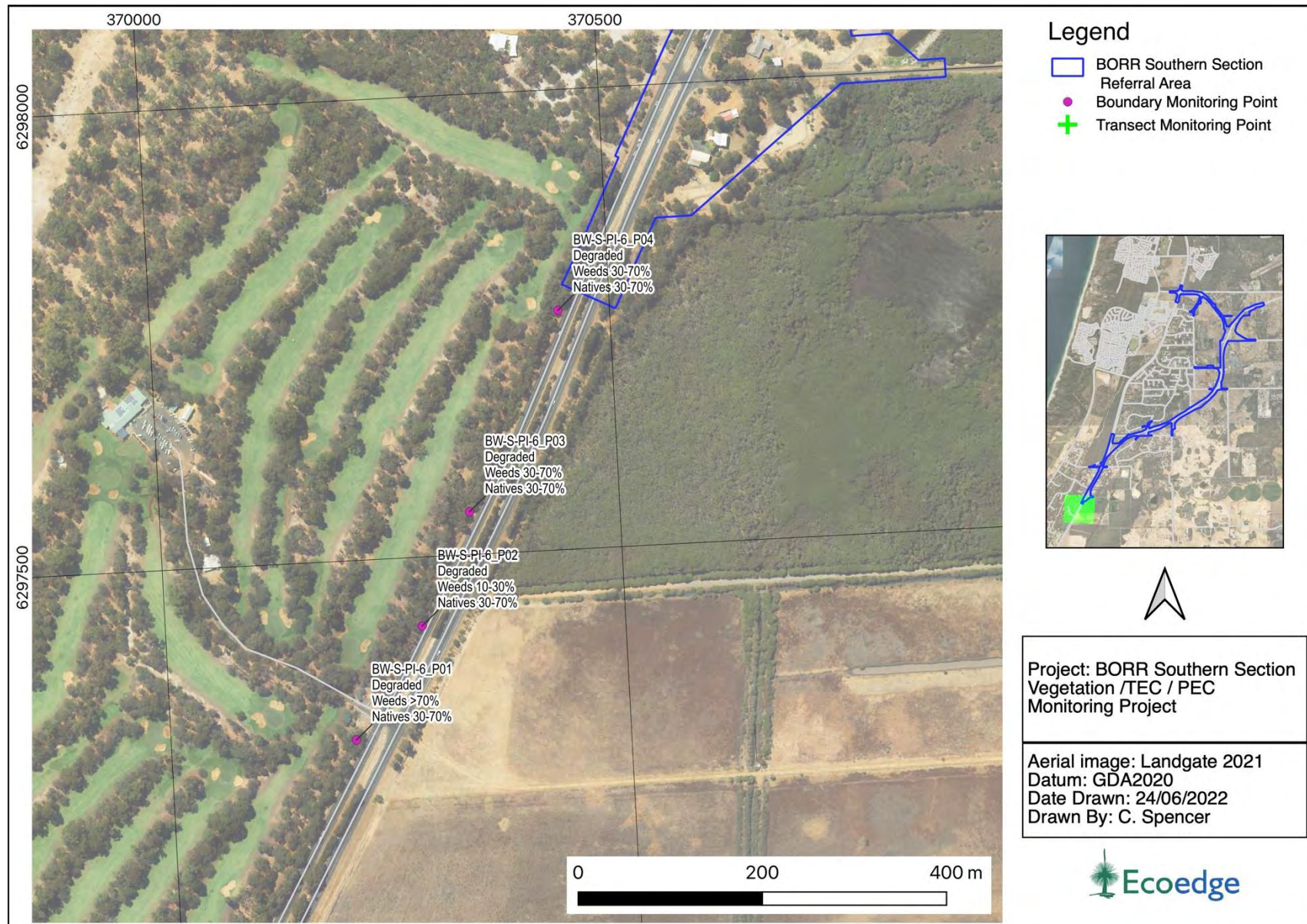


Figure 23. Baseline potential impact site BW-S-PI-6 vegetation condition, weed and native cover.

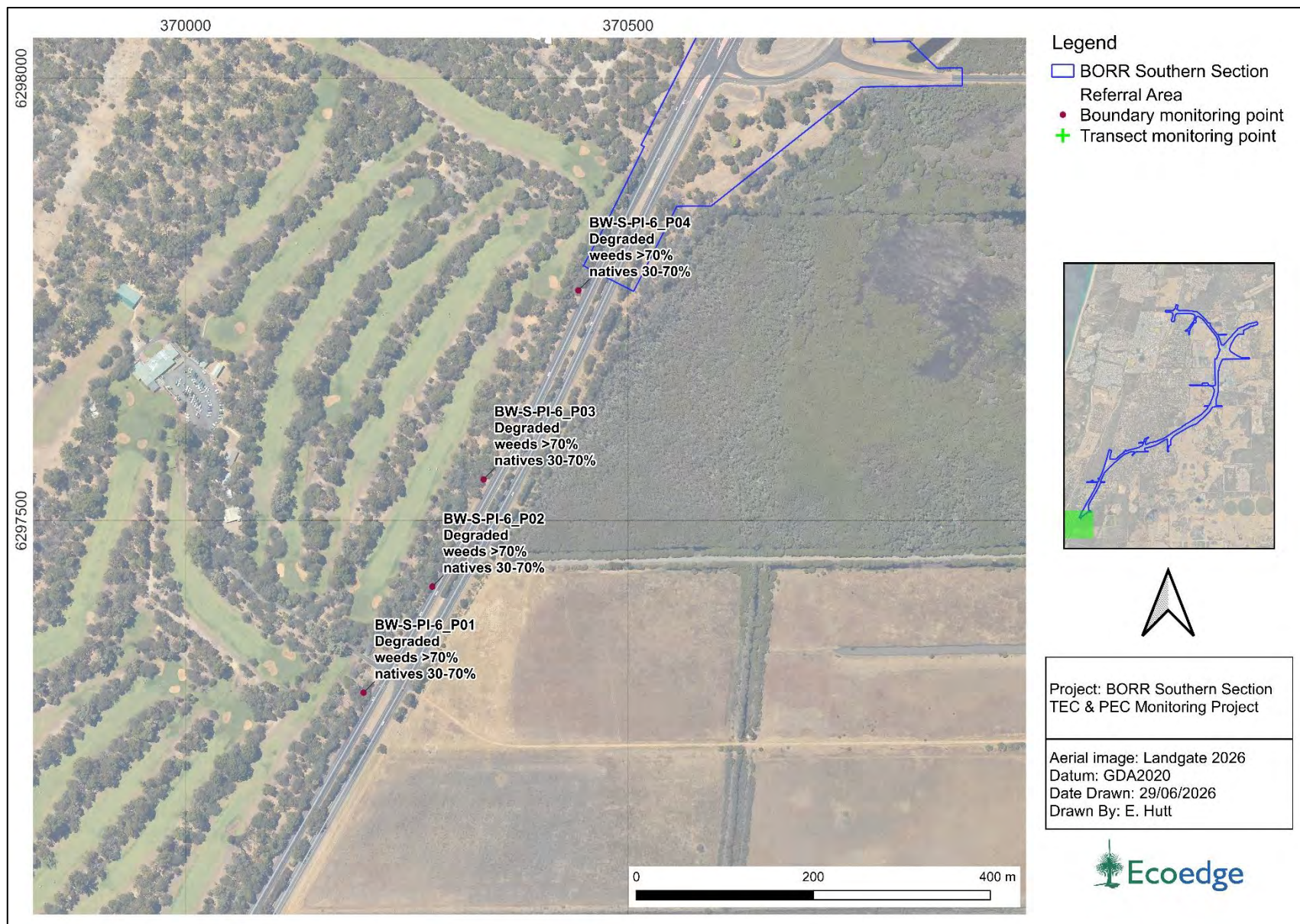


Figure 24. 2026 potential impact site BW-S-PI-6 vegetation condition, weed and native cover.

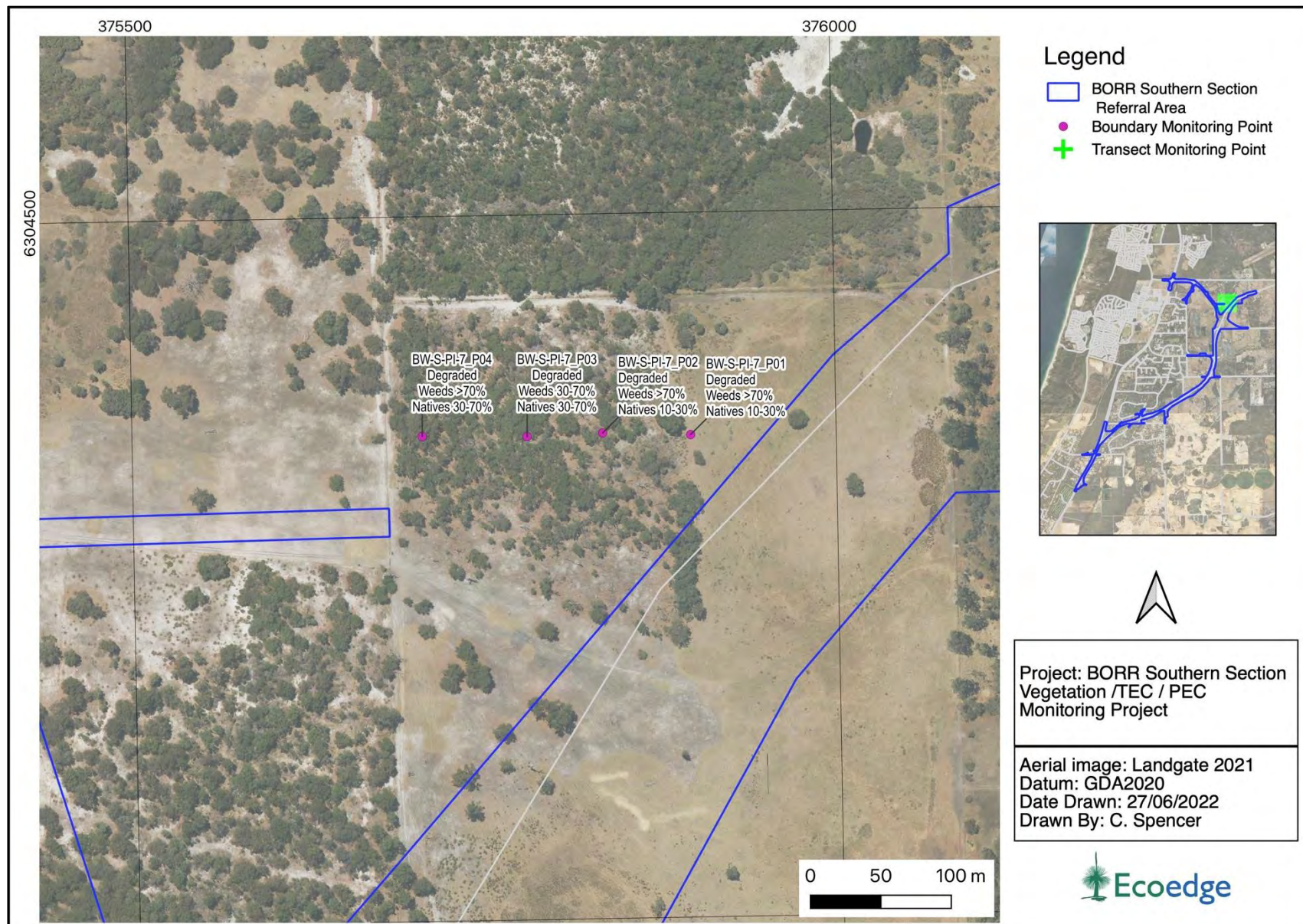


Figure 25. Baseline potential impact site BW-S-PI-7 vegetation condition, weed and native cover. **Note** data is only current to Spring 2019 due to site access - issues.

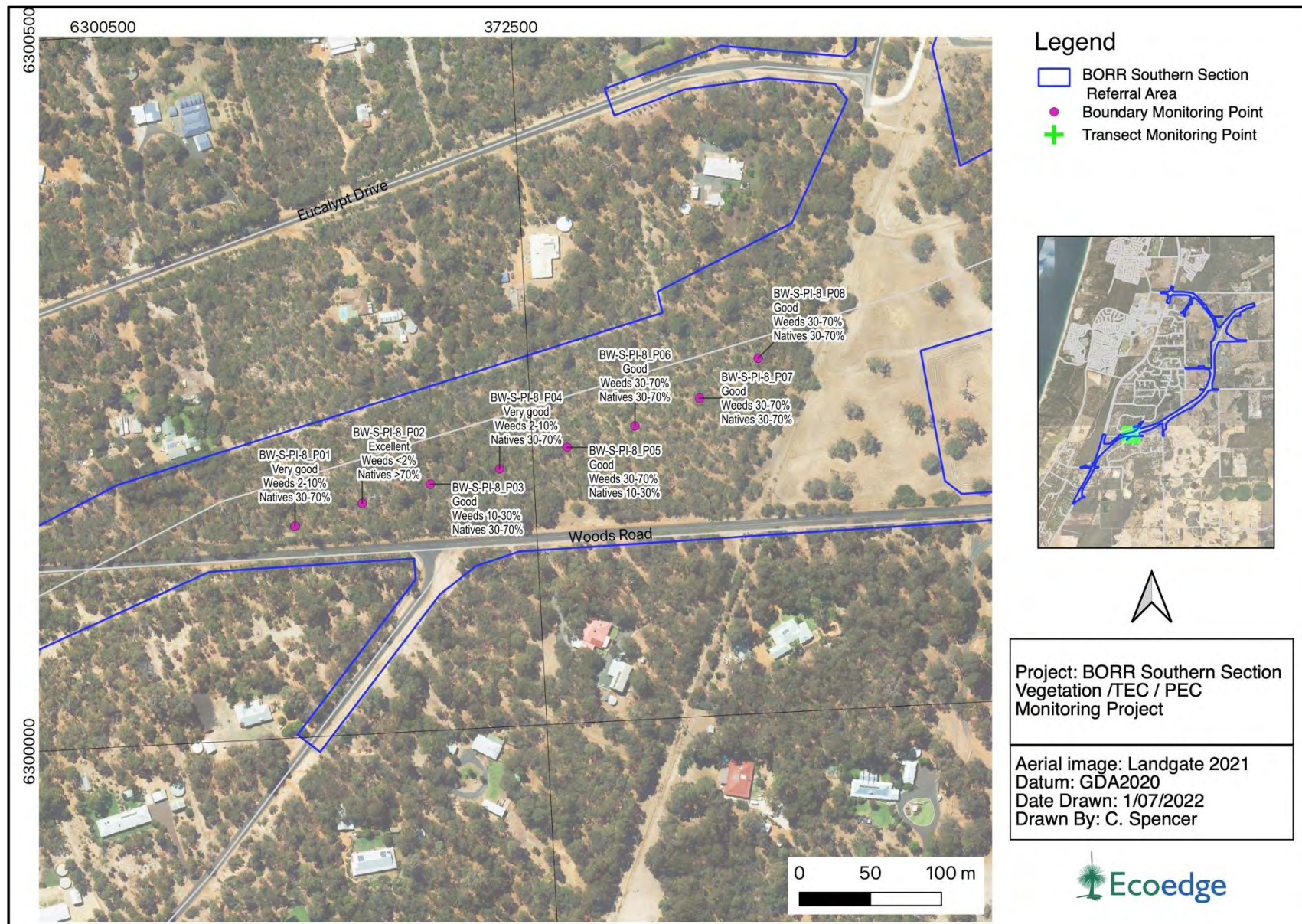


Figure 26. Baseline potential impact site BW-S-PI-8 vegetation condition, weed and native cover.

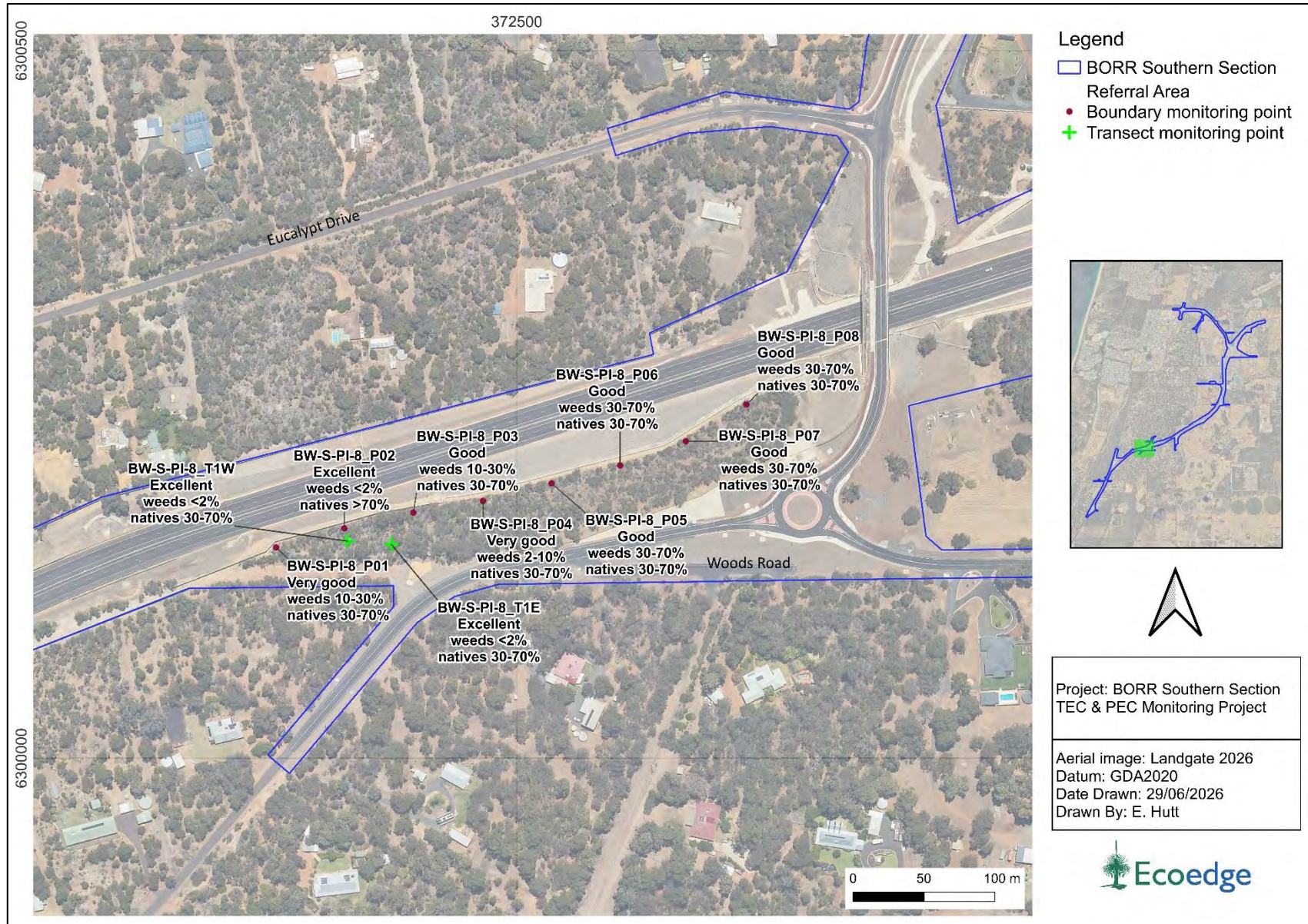


Figure 27. 2026 potential impact site BW-S-PI-8 vegetation condition, weed and native cover

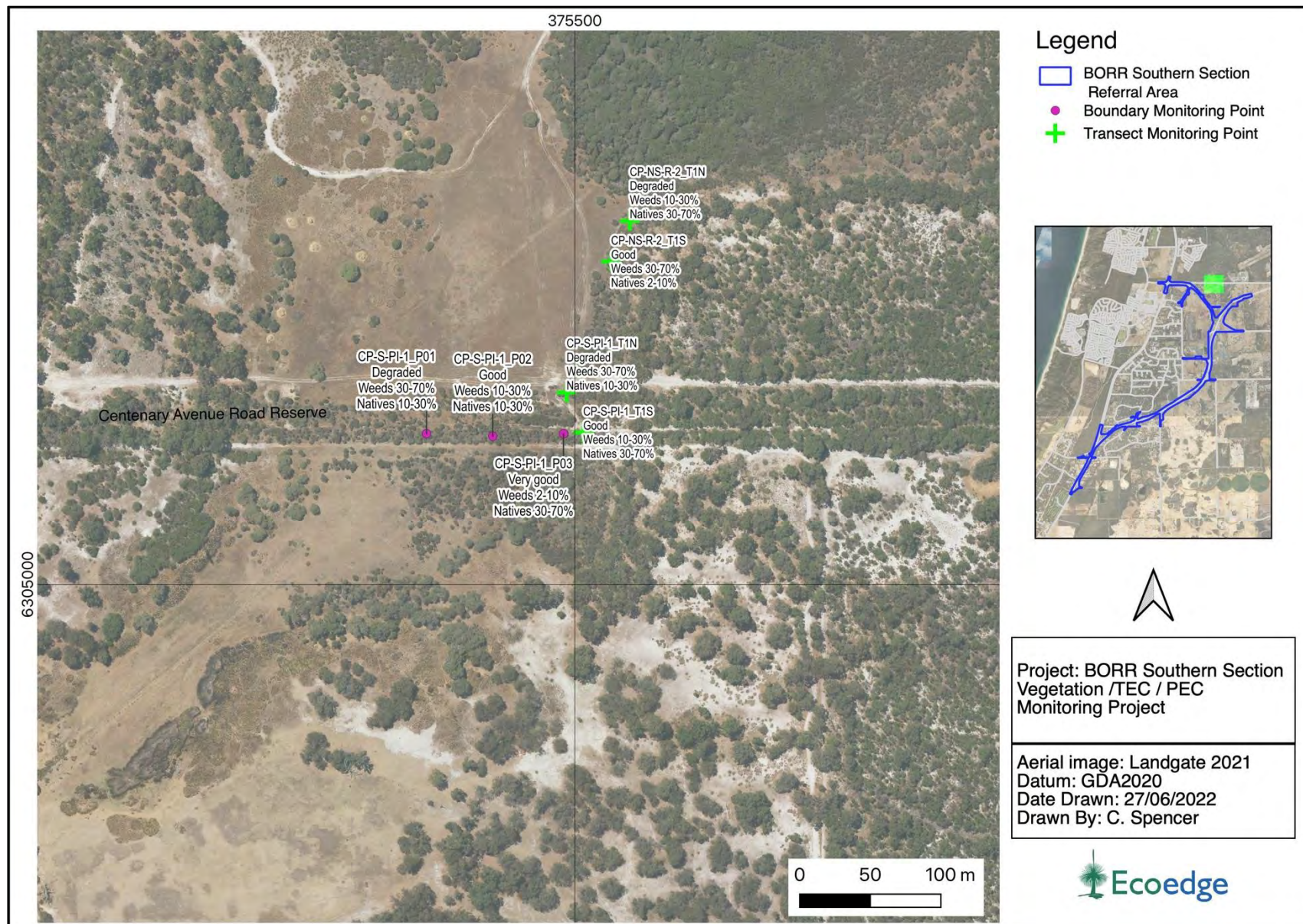


Figure 28. Baseline potential impact sites CP-S-PI-1 and reference site CP-NS-R-2 vegetation condition, weed and native cover.

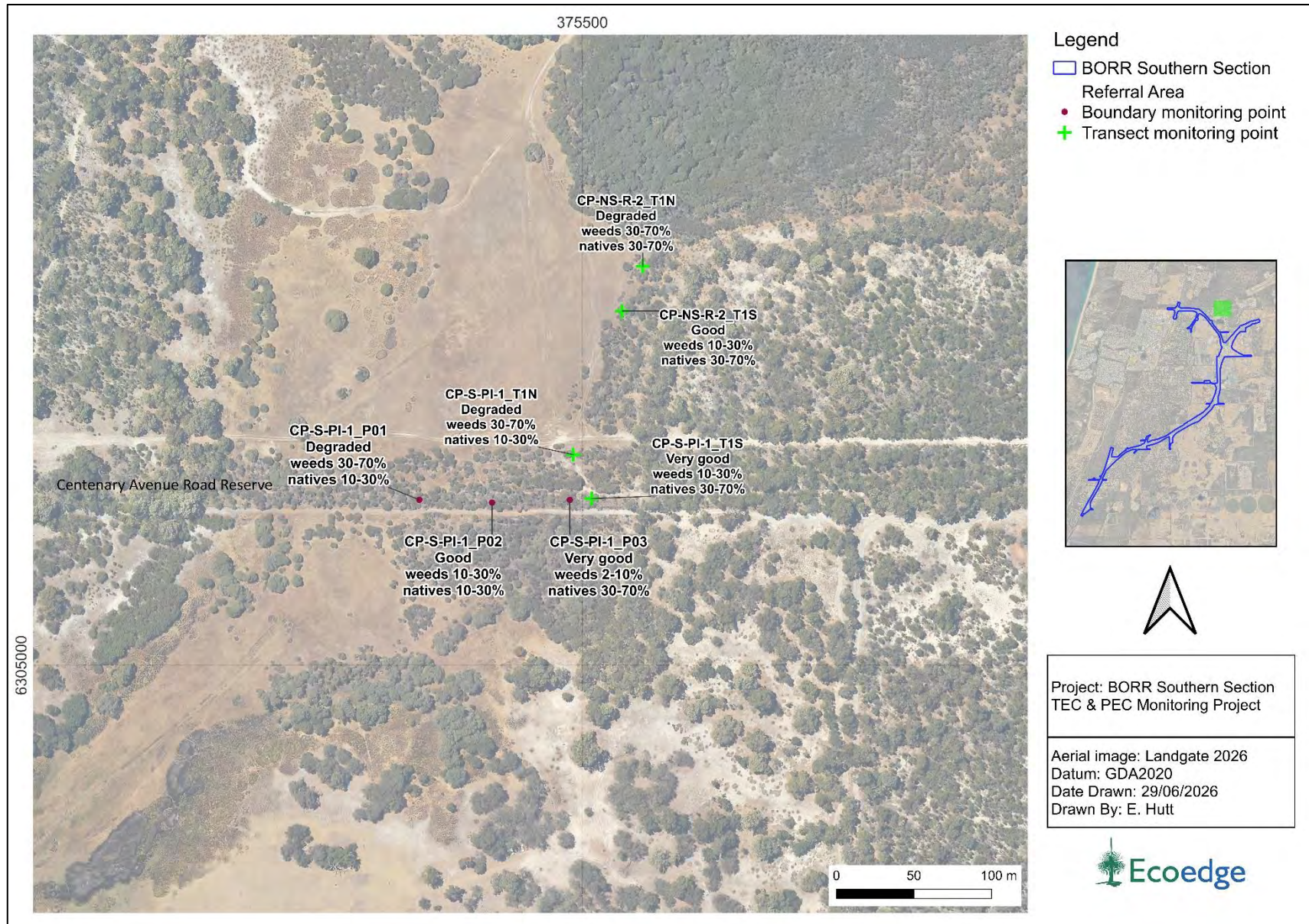


Figure 29. 2026 potential impact site CP-S-PI-1 and reference site CP-NS-R-2 vegetation condition, weed and native cover.

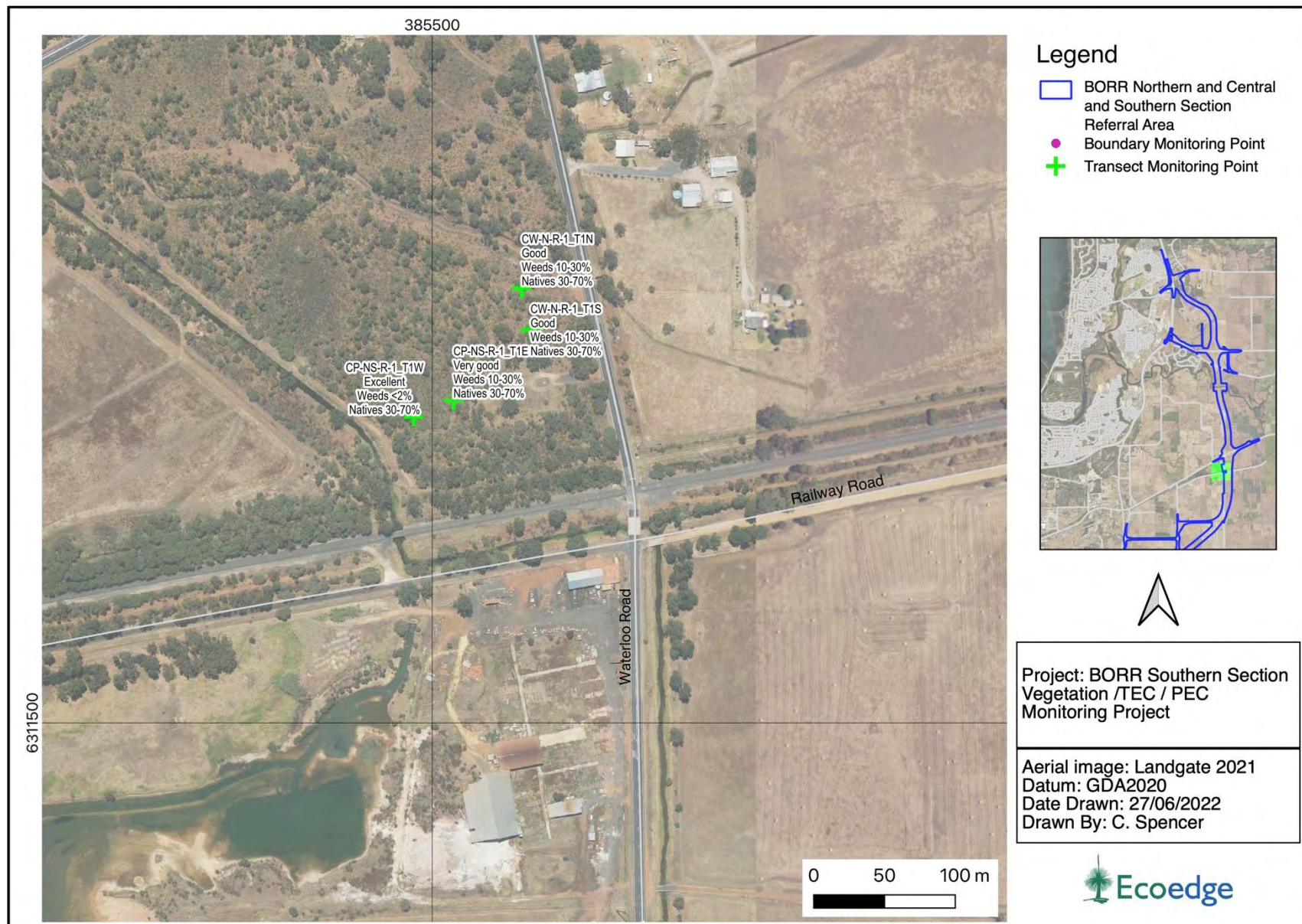


Figure 30. Baseline reference site CP-NS-R-1 vegetation condition, weed and native cover.

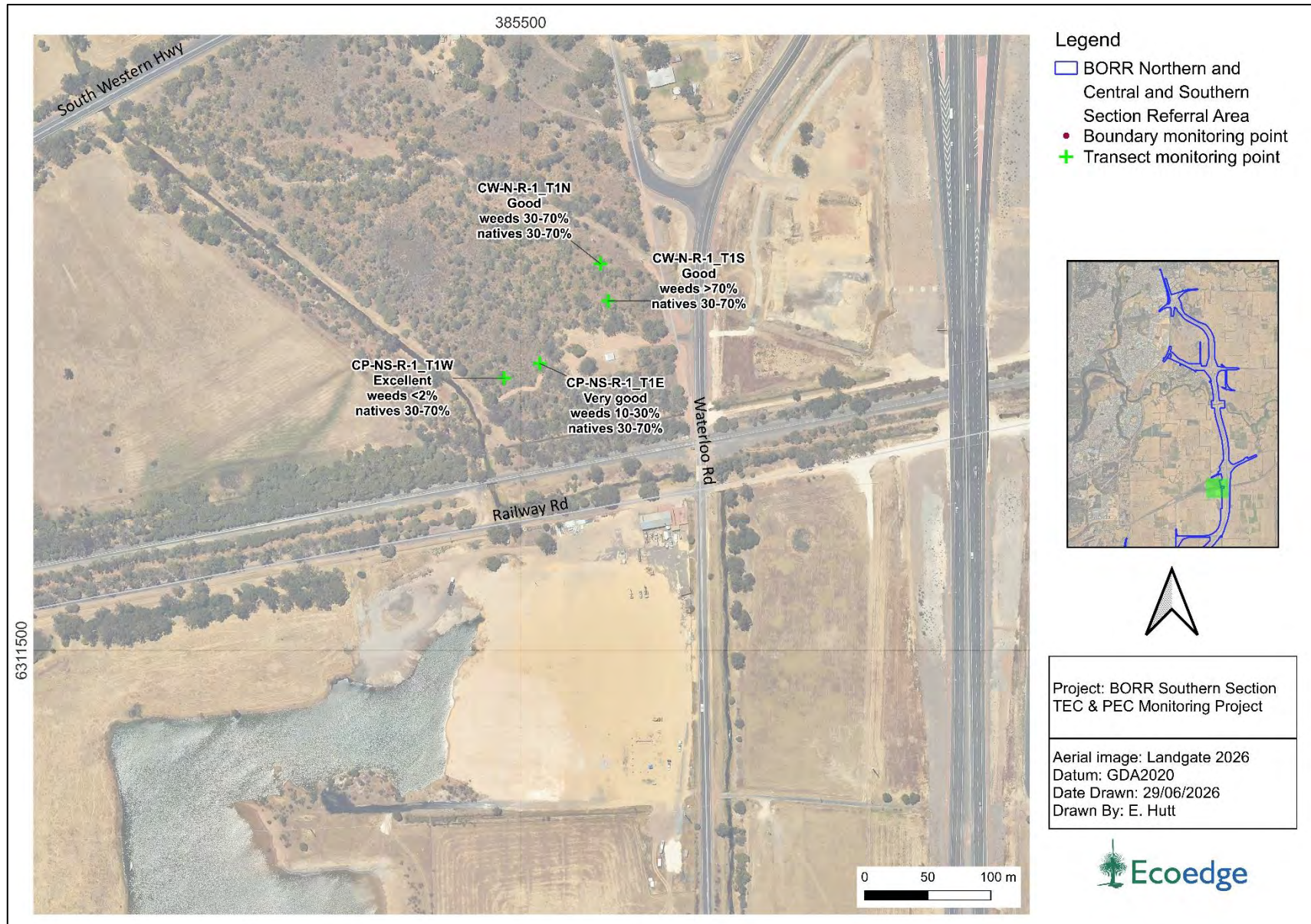


Figure 31. 2026 reference site CP-NS-R-1 vegetation condition, weed and native cover.

Appendix 2 – Monitoring Data and Photographic Records in Autumn 2026.

BTW-S-I-3_T1E



9603cbcb-49e2-459e-ac82-e0990088fab1

Latitude	-33.3858262556748
Longitude	115.651754148293
date	2026-05-26 00:00:00



de2935fe-dae6-4470-9a12-bbb2edf0e5a2

Latitude	-33.3857365
Longitude	115.6514139
date	2026-05-26 00:00:00

BTW-S-I-6_P01



d44a7999-eea9-4884-bb83-672af4455a51

Latitude	-33.4163331339289
Longitude	115.65932567446
date	2026-05-25 00:00:00



d76dd63d-c252-4ef1-8011-0fe6f9de7380

Latitude	-33.4162705827521
Longitude	115.659861448997
date	2026-05-25 00:00:00



05a68812-6e43-4230-acdd-d965e97e4186

Latitude	-33.4162611
Longitude	115.6603852
date	2026-05-26 00:00:00



5471d106-c73d-4b0e-90dc-a423f2ae25da

Latitude	-33.4162714
Longitude	115.6610338
date	2026-05-25 00:00:00



261a0a9f-2da6-44f5-989e-e65e833dbc6c

Latitude	-33.4162598
Longitude	115.662019
date	2026-05-25 00:00:00



de1d17f1-13e5-49a1-a639-5558486259a7

Latitude	-33.416307
Longitude	115.6625752
date	2026-05-25 00:00:00

BW-S-PI-1_P01



8055f50c-2226-438c-bb96-04594fe51199

Latitude	-33.3858932
Longitude	115.6498828
date	2026-05-27 00:00:00



dd3fa285-8e35-407e-bfb3-0b977f5041bc

Latitude	-33.3858199
Longitude	115.6503764
date	2026-05-27 00:00:00

BW-S-PI-1_P03



d484a759-c812-439c-81ad-05fa4f3c547e

Latitude	-33.3857995
Longitude	115.6510326
date	2026-05-27 00:00:00



0633c9ee-cee8-43a7-9b72-77b9b050366c

Latitude	-33.3859093
Longitude	115.6516872
date	2026-05-27 00:00:00



1f591650-f646-4ef7-b88a-fee9fc9c31d3

Latitude	-33.3859953102353
Longitude	115.652322814239
date	2026-05-27 00:00:00



9993762a-1db1-4172-a3a0-3d69a790d59b

Latitude	-33.42761859
Longitude	115.6401493
date	2026-05-25 00:00:00



42ab2946-9ec8-4598-81e1-a3fdf4be94ab

Latitude	-33.4268483
Longitude	115.6401301
date	2026-05-25 00:00:00



fbd38a10-1147-4e4e-a2a8-840ecb7eb9c8

Latitude	-33.4268697
Longitude	115.6396042
date	2026-05-25 00:00:00



6eca730f-2f47-4f9f-ac4c-a8ca432760fb

Latitude	-33.4226731
Longitude	115.6455322
date	2026-05-25 00:00:00
comment_2026a	No access



4d3ca352-c6f9-43f7-9aae-eab7c502d5cb

Latitude	-33.4227269
Longitude	115.6460349
date	2026-05-25 00:00:00



c4b5cebe-5fd3-4fc9-9244-b39d25a258f3

Latitude	-33.4223431324326
Longitude	115.646668869547
date	2026-05-25 00:00:00



6c4b58ba-ca91-4631-a8d1-d315d5b58c17

Latitude	-33.4221161473543
Longitude	115.647088182876
date	2026-05-25 00:00:00
comment_2026a	Large fire break on private property



70caf4f9-9019-4824-995f-e3091366b6f1

Latitude	-33.4216707
Longitude	115.6470518
date	2026-05-25 00:00:00
comment_2026a	MP move out to edge of road



2a7d0bc2-68a4-4c65-98db-5872ceb0c2f9

Latitude	-33.4212879
Longitude	115.6470898
date	2026-05-25 00:00:00
comment_2026a	Point moved off private property



2639e023-4122-454b-91d7-3edec800a629

Latitude	-33.4385484823254
Longitude	115.61415020708
date	2026-05-25 00:00:00



ec02610f-8e7d-4ab2-abf5-e829af3d67bc

Latitude	-33.4381648526884
Longitude	115.614422879652
date	2026-05-25 00:00:00



bbedf1c5-d3af-433f-afe5-635daa488607

Latitude	-33.4403155
Longitude	115.6092812
date	2026-05-25 00:00:00



4a68a201-951c-4343-810e-665bfda58819

Latitude	-33.4402387
Longitude	115.6099411
date	2026-05-25 00:00:00



ee6252d1-1a98-4f32-8ec3-add43efdf879

Latitude	-33.4400637
Longitude	115.6103677
date	2026-05-25 00:00:00



2ab8a4a4-5a49-47ad-a53f-5765640d8a12

Latitude	-33.43959751
Longitude	115.6108167
date	2026-05-25 00:00:00



31902f81-dc19-4698-81d8-29798a68e406

Latitude	-33.43942836
Longitude	115.6113988
date	2026-05-25 00:00:00



04312f23-fdad-43e8-86e6-9c8adb2c555f

Latitude	-33.4400094
Longitude	115.6112618
date	2026-05-25 00:00:00



9fe829a4-41cd-4442-915d-edf56e187b67

Latitude	-33.4399534
Longitude	115.6117959
date	2026-05-25 00:00:00



6a78d050-c1d4-4050-b896-1c5ee1637d4c

Latitude	-33.4400469
Longitude	115.6125537
date	2026-05-25 00:00:00



0e1cefb8-80d2-4b08-9e45-1d1c8472b8b1

Latitude	-33.4400371
Longitude	115.6131205
date	2026-05-25 00:00:00



fe695741-53fb-4afa-b3b1-5970c07499e7

Latitude	-33.4397621
Longitude	115.613363
date	2026-05-25 00:00:00



89dc58af-42d1-4787-83a2-d9d4bd1db887

Latitude	-33.4393722466121
Longitude	115.613765272741
date	2026-05-25 00:00:00



70f702f3-bada-46d7-b2de-b2e6447a0541

Latitude	-33.43920071
Longitude	115.6133654
date	2026-05-25 00:00:00



969e3734-130a-4926-8e8f-7ddaf1c74708

Latitude	-33.43889548
Longitude	115.6136528
date	2026-05-25 00:00:00



d834a58c-147b-4d89-b569-1dede3e1eb64

Latitude	-33.4389492113218
Longitude	115.614102495519
date	2026-05-25 00:00:00



05198732-5513-4a89-9ecf-ad31d1f64260

Latitude	-33.4377246207918
Longitude	115.614651063831
date	2026-05-25 00:00:00



e13b6100-0b95-4ca6-9546-a84e67908050

Latitude	-33.4373147015502
Longitude	115.614800983443
date	2026-05-25 00:00:00



c3f0cddd-86c2-49cb-b60f-971091751331

Latitude	-33.4368712794796
Longitude	115.614996013583
date	2026-05-25 00:00:00



7be4a498-113e-4cc8-9ccd-7ceec1a64811

Latitude	-33.4363227242787
Longitude	115.615209937759
date	2026-05-25 00:00:00



acdcaa1-2e13-4836-bf05-7cc548f9d858

Latitude	-33.4358570737724
Longitude	115.615430388394
date	2026-05-25 00:00:00



a2f2c268-dac5-4422-8e76-29eeb059e6e7

Latitude	-33.4355284483302
Longitude	115.615635348661
date	2026-05-25 00:00:00



ba46dd7d-7b48-473d-bf5c-8168a8a8acbc

Latitude	-33.4351139332707
Longitude	115.615786842843
date	2026-05-25 00:00:00



7be83f3a-8857-4e67-b11f-8a91f5d51b81

Latitude	-33.4345815299022
Longitude	115.615977588164
date	2026-05-25 00:00:00



27be540a-7e53-43f3-9cab-fce4f5f719da

Latitude	-33.4340790424162
Longitude	115.616182232225
date	2026-05-25 00:00:00



dd738c59-11c4-4431-89f6-3e0fb499f305

Latitude	-33.4335048466944
Longitude	115.616394249176
date	2026-05-25 00:00:00



34d81356-e0b9-4863-874d-cfd3926ec346

Latitude	-33.4328914116426
Longitude	115.616550433942
date	2026-05-25 00:00:00



117ae52b-eadd-420d-9c19-a12bd9dfb485

Latitude	-33.4324012
Longitude	115.6167063
date	2026-05-25 00:00:00



126f2b6c-867c-4702-a241-f12a2ac160a4

Latitude	-33.4317055
Longitude	115.6169872
date	2026-05-25 00:00:00



31130835-efd1-4879-92bf-c2c982ad4403

Latitude	-33.4312614
Longitude	115.6172137
date	2026-05-25 00:00:00



b91402d4-5dc3-4201-92d5-378eb8451a08

Latitude	-33.4306416
Longitude	115.6173231
date	2026-05-25 00:00:00



2e306f64-732a-4c2e-9f30-6f2215cae4d7

Latitude	-33.4302755
Longitude	115.6175042
date	2026-05-25 00:00:00
comment_2026a	Stable



872d22d8-f151-45c2-9f60-6bc17117b52f

Latitude	-33.4297671
Longitude	115.6176874
date	2026-05-25 00:00:00
comment_2026a	Stable

BW-S-PI-5_T1N



5bc29534-636b-48b8-a862-5f65e7a40f7d

Latitude	-33.4380190694089
Longitude	115.614421629159
date	2026-05-25 00:00:00

BW-S-PI-5_T1S



2089c5b5-9560-4286-af9d-631a300ea472

Latitude	-33.4383257
Longitude	115.614306
date	2026-05-25 00:00:00



d47789b3-28fc-4756-9fea-17c94d866972

Latitude	-33.4547108
Longitude	115.6041219
date	2026-05-25 00:00:00



8f8932ba-1ccb-42b3-962b-8984cb3d0174

Latitude	-33.453729
Longitude	115.6048411
date	2026-05-25 00:00:00



5b6ee68c-4f00-4f23-aeb9-237d70cb4df2

Latitude	-33.4517653
Longitude	115.6060602
date	2026-05-25 00:00:00



76024cbd-12be-45dc-913e-45df1088655f

Latitude	-33.45583966
Longitude	115.6033989
date	2026-05-25 00:00:00



7d1ccd46-c869-4eaa-a62f-835f7b43f8f1

Latitude	-33.4304361
Longitude	115.6266668
date	2026-05-25 00:00:00



92ba931b-061d-4a15-9448-5b55e423e6bc

Latitude	-33.43036816
Longitude	115.6271793
date	2026-05-25 00:00:00



5e90bbce-684f-4a7a-8ce2-9add1be4ce68

Latitude	-33.43028937
Longitude	115.6277484
date	2026-05-25 00:00:00



bf1d0c66-7819-49c0-bb76-d43c3265beec

Latitude	-33.43018725
Longitude	115.6282257
date	2026-05-25 00:00:00



0938325f-4c3a-4527-97ed-679aaf266694

Latitude	-33.43007145
Longitude	115.6287699
date	2026-05-25 00:00:00



be2aca8c-eaa0-431b-a81e-12eff4b1eb31

Latitude	-33.42994182
Longitude	115.6293096
date	2026-05-25 00:00:00



49c5c584-61f5-4e9b-9b7f-7c4a27e462bb

Latitude	-33.42974214
Longitude	115.6297448
date	2026-05-25 00:00:00



78548861-1f64-421d-b3b4-174da484eefd

Latitude	-33.42951194
Longitude	115.6302364
date	2026-05-25 00:00:00

BW-s-pi-8_T1E



77538e4d-3e18-452c-853d-2aca198593c7

Latitude	-33.43030447
Longitude	115.6274848
date	2026-05-25 00:00:00

BW-s-pi-8_T1w



3e1e6522-146c-41f6-87c9-2d4edcc59c5a

Latitude	-33.43039764
Longitude	115.6272319
date	2026-05-25 00:00:00



2eef107b-c3d6-4f95-84b7-833c3bab7ea1

Latitude	-33.3858477
Longitude	115.661357
date	2026-05-26 00:00:00



c5ac2261-8d3d-42a2-8620-961b0931ff64

Latitude	-33.3847504965924
Longitude	115.661888375115
date	2026-05-26 00:00:00



f0b5d02e-12db-4da7-993c-cac3462d0d2b

Latitude	-33.3850267
Longitude	115.6617319
date	2026-05-26 00:00:00



9035233c-7055-413e-8eb6-103a4b22de50

Latitude	-33.3861547
Longitude	115.6603239
date	2026-05-26 00:00:00



3bc7d0d8-a78b-4443-bdcb-66ec76e904a1

Latitude	-33.3861386
Longitude	115.6607547
date	2026-05-26 00:00:00



0f50e495-189c-473e-9861-1c3b294b11fa

Latitude	-33.3861546976564
Longitude	115.661351900536
date	2026-05-26 00:00:00



e3ec7906-1d2a-4204-ba67-9329d3ef6dbb

Latitude	-33.3850522
Longitude	115.6433727
date	2026-05-27 00:00:00



a4f3d0fd-dd05-4441-b9ce-176d57ea156e

Latitude	-33.3854732107887
Longitude	115.642887984725
date	2026-05-27 00:00:00
comment_2026a	Weedy



2ab150e0-243b-476b-b150-bdcc57850f47

Latitude	-33.3855386
Longitude	115.642477
date	2026-05-27 00:00:00



279a0e4c-d0fd-45ab-95c4-f63be6e80bbb

Latitude	-33.38506111
Longitude	115.6459322
date	2026-05-27 00:00:00



55a0dbae-028a-4c0c-9155-c5584db56264

Latitude	-33.38509489
Longitude	115.6469407
date	2026-05-27 00:00:00



3d04551d-6217-4030-9606-d18641df096e

Latitude	-33.38502621
Longitude	115.6463898
date	2026-05-27 00:00:00



aaaf17d8-7bcc-4821-b118-7a771d8e9270

Latitude	-33.3851099349762
Longitude	115.647255540499
date	2026-05-27 00:00:00



401810b9-f980-40f3-ad05-15c12be2858f

Latitude	-33.38512872
Longitude	115.6475099
date	2026-05-27 00:00:00



60ec6bfa-f727-4df9-a789-b58de51d51ec

Latitude	-33.38508928
Longitude	115.6480337
date	2026-05-27 00:00:00



90825a04-a03d-4ada-9a40-4c954c8b7eec

Latitude	-33.3851605932797
Longitude	115.648607751095
date	2026-05-27 00:00:00



fa89e4b2-8402-48ee-a800-94b34ab4475e

Latitude	-33.38519097547
Longitude	115.64912203098
date	2026-05-27 00:00:00



86e7d96b-533e-463c-9e53-8ca7e80f5ada

Latitude	-33.38515401
Longitude	115.649464
date	2026-05-27 00:00:00



c7f6f01d-eb13-469b-9ae2-d1ac4010a224

Latitude	-33.38539612
Longitude	115.6501371
date	2026-05-27 00:00:00



2cf05cfe-c216-4b9c-b0d3-8a02008b83ef

Latitude	-33.38531558
Longitude	115.6506432
date	2026-05-27 00:00:00



f94c4cea-a5f3-44e7-8d10-3c76c34a5476

Latitude	-33.38546676
Longitude	115.6451456
date	2026-05-27 00:00:00



7eec1ad6-9763-4021-885b-14ecf4c67faf

Latitude	-33.38514689
Longitude	115.6454169
date	2026-05-27 00:00:00



21d396b2-c30a-476c-bf26-c86e4b350ba2

Latitude	-33.3854663
Longitude	115.645611
date	2026-05-27 00:00:00



d3dafb2d-7f7d-40ea-954b-1625d609163e

Latitude	-33.3854694
Longitude	115.6461629
date	2026-05-27 00:00:00



8948ce3d-5844-4b22-8bb2-3719466f0e20

Latitude	-33.38546454
Longitude	115.646679
date	2026-05-27 00:00:00



1c7deb63-8fb9-46e1-9438-fdd62660ba50

Latitude	-33.3854422
Longitude	115.6471593
date	2026-05-27 00:00:00



893b044c-25df-4ea2-8f3d-f10e09ebd9df

Latitude	-33.38550133
Longitude	115.6477226
date	2026-05-27 00:00:00



8790d88e-fd21-4a18-bb26-32392537a381

Latitude	-33.38549802
Longitude	115.6481921
date	2026-05-27 00:00:00



d37c316e-d16c-4a56-80a5-a25d1c80a741

Latitude	-33.38555804
Longitude	115.6487332
date	2026-05-27 00:00:00



3d6bde91-aa36-46cc-a59b-a0dcbb42cc64

Latitude	-33.38566449
Longitude	115.6494547
date	2026-05-27 00:00:00



ae7aad05-fc69-4f00-bb81-73e5e99a5018

Latitude	-33.3851229
Longitude	115.6465552
date	2026-05-27 00:00:00



8799a8c4-2d82-4f41-a7fc-68dfd1d42dd2

Latitude	-33.3851993369926
Longitude	115.646294360563
date	2026-05-27 00:00:00



9e9d29ce-7f4a-4417-aff5-51dafa87de34

Latitude	-33.3874218
Longitude	115.643608
date	2026-05-27 00:00:00



6dcb2ae5-20b2-4c5c-adb9-3f0270404701

Latitude	-33.3879024
Longitude	115.6435372
date	2026-05-27 00:00:00



271affd8-028b-4e9f-8ffc-c37b5ee5d977

Latitude	-33.3882961
Longitude	115.6435389
date	2026-05-27 00:00:00



48452b8c-709c-41b6-8fba-c3ca561e5276

Latitude	-33.3888317
Longitude	115.6434452
date	2026-05-27 00:00:00



1d5379a5-f248-432f-91ff-009c6d69d87b

Latitude	-33.3931737
Longitude	115.6492214
date	2026-05-25 00:00:00
comment_2026a	New fence



ca012889-940a-4e46-a2ed-1e2a67febb6e

Latitude	-33.393619
Longitude	115.6490432
date	2026-05-25 00:00:00

Appendix 3. Boundary photopoint and transect end point comparative data for vegetation condition, crown extent density, weed cover and native cover from spring / summer 2019 to autumn 2024.

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BTW-S-R-1_T1E	12/03/2019	Very good				
BTW-S-R-1_T1E	22/05/2020	Very good		<2%	30-70%	
BTW-S-R-1_T1E	26/10/2020	Very good	4	<2%	30-70%	
BTW-S-R-1_T1E	10/12/2021	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1E	25/05/2022	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1E	13/10/2022	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1E	22/05/2023	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1E	10/10/2023	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1E	24/05/2024	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1E	10/08/2024	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1E	23/05/2025	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1E	17/10/2025	Very good	4	2-10%	30-70%	24Sp, overall trees are healthy, but canopy is thin, possibly a 5 more than 4.
BTW-S-R-1_T1E	26/05/2026	Very good	4	<2%	30-70%	24Sp, overall trees are healthy, but canopy is thin, possibly a 5 more than 4.
BTW-S-R-1_T1W	12/03/2019	Very good				
BTW-S-R-1_T1W	22/05/2020	Very good		<2%	30-70%	
BTW-S-R-1_T1W	26/10/2020	Very good	4	<2%	30-70%	
BTW-S-R-1_T1W	10/12/2021	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1W	25/05/2022	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1W	13/10/2022	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1W	22/05/2023	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1W	10/10/2023	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1W	24/05/2024	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1W	10/08/2024	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1W	23/05/2025	Very good	4	2-10%	30-70%	
BTW-S-R-1_T1W	17/10/2025	Very good	4	2-10%	30-70%	24Sp, Styphelia racemulosa stressed / dead following aut drought, pic 1688 Xo canopy thin, pic 1689 Cc ok, Eg thin, Af thin, Ba thin. Site manifesting autumn drought affects.
BTW-S-R-1_T1W	26/05/2026	Very good	4	2-10%	30-70%	24Sp, Styphelia racemulosa stressed / dead following aut drought, pic 1688 Xo canopy thin, pic 1689 Cc ok, Eg thin, Af thin, Ba thin. Site manifesting autumn drought affects.
BTW-S-R-2_T1N	22/11/2019	Excellent				
BTW-S-R-2_T1N	22/05/2020	Excellent		<2%	30-70%	
BTW-S-R-2_T1N	26/10/2020	Excellent	4	10-30%	30-70%	
BTW-S-R-2_T1N	20/10/2021	Excellent	4	10-30%	30-70%	
BTW-S-R-2_T1N	26/05/2022	Excellent	4	10-30%	30-70%	
BTW-S-R-2_T1N	19/10/2022	Excellent	5	10-30%	30-70%	
BTW-S-R-2_T1N	25/05/2023	Excellent	4	10-30%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BTW-S-R-2_T1N	14/10/2023	Excellent	4	10-30%	30-70%	
BTW-S-R-2_T1N	27/05/2024	Excellent	4	10-30%	30-70%	
BTW-S-R-2_T1N	10/08/2024	Excellent	4	30-70%	30-70%	
BTW-S-R-2_T1N	23/05/2025	Excellent	4	30-70%	30-70%	
BTW-S-R-2_T1N	17/10/2025	Excellent	4	30-70%	30-70%	2024sp, most Em crowns are very thin, pic 1672, 73 and 74. Some Af crowns thin 73, Eg crowns look ok. Likely due to drought as on spearwood sands.
BTW-S-R-2_T1N	26/05/2026	Excellent	4	<2%	30-70%	2024sp, most Em crowns are very thin, pic 1672, 73 and 74. Some Af crowns thin 73, Eg crowns look ok. Likely due to drought as on spearwood sands.
BTW-S-R-2_T1S	22/11/2019	Very good				
BTW-S-R-2_T1S	22/05/2020	Very good		2-10%	30-70%	
BTW-S-R-2_T1S	26/10/2020	Very good	4	10-30%	30-70%	
BTW-S-R-2_T1S	20/10/2021	Very good	4	10-30%	30-70%	
BTW-S-R-2_T1S	26/05/2022	Very good	4	10-30%	30-70%	
BTW-S-R-2_T1S	19/10/2022	Very good	4	10-30%	30-70%	
BTW-S-R-2_T1S	25/05/2023	Very good	4	10-30%	30-70%	
BTW-S-R-2_T1S	14/10/2023	Very good	4	30-70%	30-70%	
BTW-S-R-2_T1S	27/05/2024	Very good	4	30-70%	30-70%	
BTW-S-R-2_T1S	10/08/2024	Very good	4	30-70%	30-70%	
BTW-S-R-2_T1S	23/05/2025	Very good	4	30-70%	30-70%	
BTW-S-R-2_T1S	17/10/2025	Very good	4	30-70%	30-70%	Jarrah in foreground less than 50% canopy. 2024sp overall the site appears healthy but canopy in most em trees, some af very thin. Still 4 stress.
BTW-S-R-2_T1S	26/05/2026	Very good	4	2-10%	30-70%	Jarrah in foreground less than 50% canopy. 2024sp overall the site appears healthy but canopy in most em trees, some af very thin. Still 4 stress.
BW-S-PI-1_P01	21/11/2019	Very good		2-10%		
BW-S-PI-1_P01	26/05/2020	Very good		2-10%	30-70%	
BW-S-PI-1_P01	28/10/2020	Very Good	4	10-30%	30-70%	The large Marri in the background is almost dead. ,
BW-S-PI-1_P01	14/10/2021	Very Good	4	10-30%	30-70%	
BW-S-PI-1_P01	26/05/2022	Very good	4	10-30%	30-70%	
BW-S-PI-1_P01	19/10/2022	Very good	4	10-30%	30-70%	
BW-S-PI-1_P01	25/05/2023	Very good	4	10-30%	30-70%	
BW-S-PI-1_P01	29/09/2023	Very good	4	10-30%	30-70%	Large marris in the background very stressed. P2522 2523,
BW-S-PI-1_P01	24/05/2024	Very good	4	10-30%	30-70%	Large marris in the background very stressed. P2522 2523, almost dead. 2024 Dead jarrah sapling in foreground from drought? Dead banksia scattered in background. Site adjacent to Borr clearing, note trees healthy in this space. Pic 159,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-1_P01	11/10/2024	Very good	4	30-70%	30-70%	2024 Dead jarrah sapling in foreground from drought? Dead banksia scattered in background. Site adjacent to Borr clearing, note trees healthy in this space. Pic 159. 24Sp veg 4 same adjacent BORR, pic 1793,
BW-S-PI-1_P01	23/05/2025	Very good	4	30-70%	30-70%	2024 Dead jarrah sapling in foreground from drought? Dead banksia scattered in background. Site adjacent to Borr clearing, note trees healthy in this space. Pic 159. 24Sp veg 4 same adjacent BORR, pic 1793,Dead
BW-S-PI-1_P01	30/09/2025	Very good	4	30-70%	30-70%	Site stable, most vegetation healthy, but with some evidence of historical drought stress.
BW-S-PI-1_P01	26/05/2026	Very good	4	10-30%	30-70%	Site stable, weed load has decreased, perhaps due to low autumn rain.
BW-S-PI-1_P02	21/11/2019	Very good		2-10%		
BW-S-PI-1_P02	26/05/2020	Very good		2-10%	30-70%	
BW-S-PI-1_P02	28/10/2020	Very Good	4	>70%	30-70%	Some jarrah trees very thin, others not.,
BW-S-PI-1_P02	14/10/2021	Very Good	4	>70%	30-70%	
BW-S-PI-1_P02	26/05/2022	Very good	4	>70%	30-70%	Marri crowns thinning ,
BW-S-PI-1_P02	19/10/2022	Very good	4	>70%	30-70%	Marri crowns thinning , small jarrah tree almost dead, ,
BW-S-PI-1_P02	25/05/2023	Very good	4	>70%	30-70%	Marri crowns thinning , small jarrah tree almost dead, ,
BW-S-PI-1_P02	29/09/2023	Very good	4	>70%	30-70%	Marri crowns thinning , small jarrah tree almost dead, / dead ,
BW-S-PI-1_P02	24/05/2024	Very good	4	>70%	30-70%	Marri crowns thinning , small jarrah tree almost dead, / dead. 2024 scattered Xylomelon occidentale very stressed, Banksia also dead / stressed but less dense on vegetation. ,
BW-S-PI-1_P02	11/10/2024	Very good	4	>70%	30-70%	Marri crowns thinning , small jarrah tree almost dead, / dead. 2024 scattered Xylomelon occidentale very stressed, Banksia also dead / stressed but less dense on vegetation. 24Sp veg all about 4. Similar to veg adjacent BORR pic 1790.,
BW-S-PI-1_P02	23/05/2025	Very good	4	>70%	30-70%	Marri crowns thinning , small jarrah tree almost dead, / dead. 2024 scattered Xylomelon occidentale very stressed, Banksia also dead / stressed but less dense on vegetation. 24Sp veg all about 4. Similar to veg adjacent BORR pic 1790.,A25 jarrah still stressed. Cc also. Adjacent Borr side veg ok.
BW-S-PI-1_P02	30/09/2025	Very good	4	>70%	30-70%	Site looks healthy. The xo has recovered well. Pic 2:56 need to check.
BW-S-PI-1_P02	26/05/2026	Very good	4	30-70%	30-70%	Site looks ok, „ÀòDead,Àô em have some epicormic growth.
BW-S-PI-1_P03	21/11/2019	Good		<2%		

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-1_P03	26/05/2020	Good		<2%	30-70%	
BW-S-PI-1_P03	28/10/2020	Good	4	30-70%	30-70%	Half trees thin half ok,
BW-S-PI-1_P03	14/10/2021	Good	4	30-70%	30-70%	
BW-S-PI-1_P03	26/05/2022	Good	4	30-70%	30-70%	
BW-S-PI-1_P03	19/10/2022	Good	4	30-70%	30-70%	Acacia iteaphylla invading,
BW-S-PI-1_P03	25/05/2023	Good	4	30-70%	30-70%	Acacia iteaphylla invading,
BW-S-PI-1_P03	29/09/2023	Good	4	30-70%	30-70%	Acacia iteaphylla invading,
BW-S-PI-1_P03	24/05/2024	Good	4	30-70%	30-70%	dead banksias mostly saplings and young trees are scattered throughout the surrounding vegetation. Pic 158,
BW-S-PI-1_P03	11/10/2024	Good	3	30-70%	30-70%	dead banksias mostly saplings and young trees are scattered throughout the surrounding vegetation. Pic 158. 24sp almost all Bg, Ba dead. Cc Xo 3. Site stressed. Pic 1783.,
BW-S-PI-1_P03	23/05/2025	Good	3	30-70%	30-70%	dead banksias mostly saplings and young trees are scattered throughout the surrounding vegetation. Pic 158. 24sp almost all Bg, Ba dead. Cc Xo 3. Site stressed. Pic 1783.,A25 per previous comments. A iteaphylla growing. O vaginata showing signs of stress.
BW-S-PI-1_P03	30/09/2025	Good	3	30-70%	30-70%	No new deaths, Banksia trees dead, no recovery. Xo have recovered and o hisp has recovered.
BW-S-PI-1_P03	26/05/2026	Good	3	30-70%	30-70%	No new deaths, o hisp showing signs of stress, but ok, pic 7990
BW-S-PI-1_P04	21/11/2019	Very good		<2%		
BW-S-PI-1_P04	26/05/2020	Very good		<2%	30-70%	
BW-S-PI-1_P04	28/10/2020	Very good	4	30-70%	30-70%	
BW-S-PI-1_P04	14/10/2021	Very good	4	30-70%	30-70%	
BW-S-PI-1_P04	26/05/2022	Very good	4	30-70%	30-70%	Autumn survey doesn't show weeds,
BW-S-PI-1_P04	19/10/2022	Very good	4	30-70%	30-70%	Autumn survey doesn't show weeds,
BW-S-PI-1_P04	25/05/2023	Very good	4	30-70%	30-70%	Recently cleared hard up against monitoring boundary. P686,
BW-S-PI-1_P04	29/09/2023	Very good	4	30-70%	30-70%	Autumn site was incorrect, too close to the boundary ,
BW-S-PI-1_P04	24/05/2024	Very good	4	30-70%	30-70%	Some scattered deaths of Banksia, mostly Banksia grandis saplings with some b attenuata trees. Impact appears localised? Low in landscape.pic 155. Not related to Borr.,
BW-S-PI-1_P04	11/10/2024	Very good	4	30-70%	30-70%	24sp local veg 4. Background BaBg dead pic 1784. Area adjacent BORR, veg 5 pic 1785, 1786 lower slope. Pic 1787 up.,
BW-S-PI-1_P04	23/05/2025	Very good	4	30-70%	30-70%	24sp local veg 4. Background BaBg dead pic 1784. Area adjacent BORR, veg 5 pic 1785, 1786 lower slope. Pic 1787 up.,25A local veg 4
BW-S-PI-1_P04	30/09/2025	Very good	4	30-70%	30-70%	Site stable, no further decline evident

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-1_P04	26/05/2026	Very good	4	10-30%	30-70%	Site looks good, low weed cover.
BW-S-PI-1_P05	21/11/2019	Very good		<2%		
BW-S-PI-1_P05	26/05/2020	Very good		<2%	30-70%	
BW-S-PI-1_P05	28/10/2020	Very good	5	<2%	30-70%	
BW-S-PI-1_P05	14/10/2021	Very good	5	<2%	30-70%	
BW-S-PI-1_P05	26/05/2022	Very good	5	<2%	30-70%	
BW-S-PI-1_P05	19/10/2022	Very good	5	<2%	30-70%	
BW-S-PI-1_P05	25/05/2023	Very good	5	<2%	30-70%	
BW-S-PI-1_P05	29/09/2023	Very good	5	<2%	30-70%	
BW-S-PI-1_P05	24/05/2024	Very good	5	<2%	30-70%	Vegetation appears healthy, no drying effects apparent. ,
BW-S-PI-1_P05	11/10/2024	Very good	5	<2%	30-70%	Vegetation appears healthy, no drying effects apparent. 24sp site appears healthy. Low in landscape.,
BW-S-PI-1_P05	23/05/2025	Very good	5	<2%	30-70%	Vegetation appears healthy, no drying effects apparent. 24sp site appears healthy. Low in landscape.,A25 site is stable.
BW-S-PI-1_P05	30/09/2025	Very good	5	<2%	30-70%	Site stable.
BW-S-PI-1_P05	26/05/2026	Very good	4	2-10%	30-70%	Crown extent and density has dropped to 4 in Ba. Weed cover increased due to bmax.adjacent BORR area low in weeds, pic 7991, but if not maintained due to fences could be a vector 4 weeds.
BW-S-PI-1_T1E	19/11/2019	Very good				
BW-S-PI-1_T1E	26/05/2020	Very good		<2%	30-70%	
BW-S-PI-1_T1E	02/08/2021	Very good	3	<2%	30-70%	
BW-S-PI-1_T1E	14/10/2021	Very good	4	2-10%	30-70%	
BW-S-PI-1_T1E	26/05/2022	Very good	4	2-10%	30-70%	
BW-S-PI-1_T1E	13/10/2022	Very good	4	2-10%	30-70%	
BW-S-PI-1_T1E	25/05/2023	Very good	4	2-10%	30-70%	
BW-S-PI-1_T1E	10/10/2023	Very good	4	2-10%	30-70%	
BW-S-PI-1_T1E	24/05/2024	Very good	4	2-10%	30-70%	
BW-S-PI-1_T1E	10/09/2024	Very good	4	2-10%	30-70%	
BW-S-PI-1_T1E	23/05/2025	Very good	4	2-10%	30-70%	,A25 site is stable. New new stress observed.
BW-S-PI-1_T1W	19/11/2019	Very good				
BW-S-PI-1_T1W	26/05/2020	Very good		<2%	30-70%	
BW-S-PI-1_T1W	26/10/2020	Very good	4	2-10%	30-70%	
BW-S-PI-1_T1W	14/10/2021	Very good	4	10-30%	30-70%	
BW-S-PI-1_T1W	26/05/2022	Very good	4	10-30%	30-70%	
BW-S-PI-1_T1W	13/10/2022	Very good	4	10-30%	30-70%	
BW-S-PI-1_T1W	25/05/2023	Very good	4	10-30%	30-70%	
BW-S-PI-1_T1W	10/10/2023	Very good	4	10-30%	30-70%	
BW-S-PI-1_T1W	24/05/2024	Very good	4	10-30%	30-70%	
BW-S-PI-1_T1W	10/09/2024	Very good	3	30-70%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-1_T1W	23/05/2025	Good	3	30-70%	30-70%	,Site is now good. Weeds have increased, and some understory plants dead, Phlebocarya ciliata. decaying altering the structure of site.
BW-S-PI-2_P01	22/11/2019	Good		10-30%		Possible historical grazing,
BW-S-PI-2_P01	20/05/2020	Good		10-30%	30-70%	Possible historical grazing,
BW-S-PI-2_P01	28/10/2020	Good	4	30-70%	30-70%	Possible historical grazing,
BW-S-PI-2_P01	13/10/2021	Good	4	30-70%	30-70%	
BW-S-PI-2_P01	25/05/2022	Good	4	30-70%	30-70%	Marri blight still impacting trees,
BW-S-PI-2_P01	17/10/2022	Good	4	30-70%	30-70%	Marri blight still impacting trees, trees continue to thin. Weeds increasing. Could be called degraded. ,
BW-S-PI-2_P01	24/05/2023	Good	4	30-70%	30-70%	Marri blight still impacting trees, trees continue to thin. Weeds increasing. Could be called degraded. ,
BW-S-PI-2_P01	30/09/2023	Good	4	>70%	30-70%	Marri blight still impacting trees, trees continue to thin. Weeds increasing. Could be called degraded. ,
BW-S-PI-2_P01	27/05/2024	Good	4	>70%	30-70%	Marri blight still impacting trees, trees continue to thin. Weeds increasing. Could be called degraded. 2024 per 2023 about 75%,
BW-S-PI-2_P01	15/11/2024	Good	4	>70%	30-70%	Marri blight still impacting trees, trees continue to thin. Weeds increasing. Could be called degraded. 2024 per 2023 about 75%. 24Sp blight affected cc thin.,
BW-S-PI-2_P01	19/05/2025	Good	4	>70%	30-70%	Marri blight still impacting trees, trees continue to thin. Weeds increasing. Could be called degraded. 2024 per 2023 about 75%. 24Sp blight affected cc thin.,
BW-S-PI-2_P01	17/10/2025	Good	4	>70%	30-70%	S25 blight still active. Site is degraded.
BW-S-PI-2_P01	25/05/2026	Degraded	4	>70%	30-70%	Cc still very thin at site but overall a 4
BW-S-PI-2_P02	22/11/2019	Degraded		30-70%		
BW-S-PI-2_P02	20/05/2020	Degraded		30-70%	30-70%	
BW-S-PI-2_P02	28/10/2020	Degraded	5	30-70%	30-70%	
BW-S-PI-2_P02	13/10/2021	Degraded	5	30-70%	30-70%	
BW-S-PI-2_P02	25/05/2022	Degraded	5	30-70%	30-70%	
BW-S-PI-2_P02	17/10/2022	Degraded	5	30-70%	30-70%	
BW-S-PI-2_P02	24/05/2023	Degraded	5	30-70%	30-70%	
BW-S-PI-2_P02	30/09/2023	Degraded	5	>70%	30-70%	Weed cover has increased. Mostly Briza and avena,
BW-S-PI-2_P02	27/05/2024	Degraded	5	>70%	30-70%	Weed cover has increased. Mostly Briza and avena,2024, tree canopy reasonably healthy, about 80%,
BW-S-PI-2_P02	15/11/2024	Degraded	5	>70%	30-70%	Weed cover has increased. Mostly Briza and avena,2024, tree canopy reasonably healthy, about 80%. 24Sp most trees healthy, those with blight more stressed.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-2_P02	18/05/2025	Degraded	5	>70%	30-70%	Weed cover has increased. Mostly Briza and avena,2024, tree canopy reasonably healthy, about 80%. 24Sp most trees healthy, those with blight more stressed.,
BW-S-PI-2_P02	17/10/2025	Degraded	5	>70%	30-70%	S25 per S24
BW-S-PI-2_P02	25/05/2026	Degraded	4	>70%	30-70%	The canopy of em and cc has thinned. Especially in the blight affected trees.
BW-S-PI-2_P03	22/11/2019	Degraded		10-30%		
BW-S-PI-2_P03	20/05/2020	Degraded		10-30%	30-70%	
BW-S-PI-2_P03	28/10/2020	Degraded	5	10-30%	30-70%	
BW-S-PI-2_P03	13/10/2021	Degraded	5	30-70%	30-70%	
BW-S-PI-2_P03	25/05/2022	Degraded	5	30-70%	30-70%	
BW-S-PI-2_P03	17/10/2022	Degraded	5	30-70%	30-70%	Weed cover across the site has increased. A Banksia ilicifolia is dead, 1,year, within monitoring site. ,
BW-S-PI-2_P03	24/05/2023	Degraded	5	30-70%	30-70%	Weed cover across the site has increased. A Banksia ilicifolia is dead, 1,year, within monitoring site. ,
BW-S-PI-2_P03	30/09/2023	Degraded	4	30-70%	30-70%	Weed cover across the site has increased. A Banksia ilicifolia is dead, 1,year, within monitoring site. Large jarrah tree in site is stressed, hence decrease in stress score. ,
BW-S-PI-2_P03	27/05/2024	Degraded	4	30-70%	30-70%	Weed cover across the site has increased. A Banksia ilicifolia is dead, 1,year, within monitoring site. Large jarrah tree in site is stressed, hence decrease in stress score. 2024, all jarrah trees are stressed overall site about 60% canopy ,
BW-S-PI-2_P03	15/11/2024	Degraded	4	30-70%	30-70%	2024, all jarrah trees are stressed overall site about 60% canopy. 24Sp per 24au.,
BW-S-PI-2_P03	23/05/2025	Degraded	4	30-70%	30-70%	2024, all jarrah trees are stressed overall site about 60% canopy. 24Sp per 24au.,
BW-S-PI-2_P03	17/10/2025	Degraded	4	30-70%	30-70%	S25 site stable
BW-S-PI-2_P03	25/05/2026	Degraded	4	30-70%	30-70%	Site stable.
BW-S-PI-2_P04	22/11/2019	Degraded		30-70%		Historically cleared grazed,
BW-S-PI-2_P04	20/05/2020	Degraded		30-70%	10-30%	Historically cleared grazed,
BW-S-PI-2_P04	28/10/2020	Degraded	5	30-70%	10-30%	Historically cleared grazed,
BW-S-PI-2_P04	13/10/2021	Degraded	5	30-70%	10-30%	
BW-S-PI-2_P04	25/05/2022	Degraded	5	30-70%	10-30%	
BW-S-PI-2_P04	17/10/2022	Degraded	5	30-70%	10-30%	Large Jarrah beyond site is very stressed. ,
BW-S-PI-2_P04	24/05/2023	Degraded	5	30-70%	10-30%	Large Jarrah beyond site is very stressed. Appears stable. ,
BW-S-PI-2_P04	30/09/2023	Degraded	5	30-70%	10-30%	Large Jarrah beyond site is very stressed. Appears stable. / per autumn monitoring round.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-2_P04	27/05/2024	Degraded	4	30-70%	10-30%	Large Jarrah beyond site is very stressed. Appears stable. / per autumn monitoring round.2024 blight affected trees have lost many of their leaves. A longifolia dead. Overall trees thin about 60%,
BW-S-PI-2_P04	15/11/2024	Degraded	4	30-70%	10-30%	Large Jarrah beyond site is very stressed. Appears stable. / per autumn monitoring round.2024 blight affected trees have lost many of their leaves. A longifolia dead. Overall trees thin about 60%. 24sp blight affected cc still 60% other trees ok.,
BW-S-PI-2_P04	23/05/2025	Degraded	4	30-70%	10-30%	Large Jarrah beyond site is very stressed. Appears stable. / per autumn monitoring round.2024 blight affected trees have lost many of their leaves. A longifolia dead. Overall trees thin about 60%. 24sp blight affected cc still 60% other trees ok.,
BW-S-PI-2_P04	17/10/2025	Degraded	4	30-70%	10-30%	S25 blight still active in marri. Else other veg ok, Along is gone, weeded?
BW-S-PI-2_P04	25/05/2026	Degraded	4	30-70%	10-30%	Site stable except for large blight affected tree. Pic 7979
BW-S-PI-2_P05	22/11/2019	Degraded		30-70%		Historically cleared grazed ,
BW-S-PI-2_P05	20/05/2020	Degraded		30-70%	10-30%	Historically cleared grazed,
BW-S-PI-2_P05	28/10/2020	Degraded	5	>70%	10-30%	Large jarrah is stressed, but other trees are ok,
BW-S-PI-2_P05	13/10/2021	Degraded	5	>70%	10-30%	
BW-S-PI-2_P05	25/05/2022	Degraded	5	>70%	10-30%	Old clearing site. Veg currently healthy.,
BW-S-PI-2_P05	17/10/2022	Degraded	5	>70%	10-30%	Old clearing site. Most Veg currently healthy, but Large jarrah is in decline, has been stressed since monitoring started. ,
BW-S-PI-2_P05	24/05/2023	Degraded	5	>70%	10-30%	Old clearing site. Most Veg currently healthy, but Large jarrah is in decline, has been stressed since monitoring started. Tree stressed but stable.,
BW-S-PI-2_P05	30/09/2023	Degraded	5	>70%	10-30%	Old clearing site. Most Veg currently healthy, but Large jarrah is in decline, has been stressed since monitoring started. Tree stressed but stable. / as per autumn round ,
BW-S-PI-2_P05	27/05/2024	Degraded	4	>70%	10-30%	2024 large jarrah very stressed, overall trees ok but about 75 % canopy. Understory ok,
BW-S-PI-2_P05	15/11/2024	Degraded	4	>70%	10-30%	2024 large jarrah very stressed, overall trees ok but about 75 % canopy. Understory ok. 24Sp large Em has recovered a bit to 4. Em saplings thin.,
BW-S-PI-2_P05	23/05/2025	Degraded	4	>70%	10-30%	2024 large jarrah very stressed, overall trees ok but about 75 % canopy. Understory ok. 24Sp large Em has recovered a bit to 4. Em saplings thin.,
BW-S-PI-2_P05	17/10/2025	Degraded	4	>70%	10-30%	S25 large Em about 60% foliage. Else other veg ok.

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-2_P05	25/05/2026	Degraded	4	>70%	10-30%	Large em about 40% footage else ok. Pic 7980.
BW-S-PI-2_P06	22/11/2019	Degraded		30-70%		
BW-S-PI-2_P06	20/05/2020	Degraded		30-70%	10-30%	
BW-S-PI-2_P06	09/09/2020	Degraded		30-70%	10-30%	
BW-S-PI-2_P06	13/10/2021	Degraded	5	30-70%	10-30%	
BW-S-PI-2_P06	25/05/2022	Degraded	5	30-70%	10-30%	
BW-S-PI-2_P06	17/10/2022	Degraded	5	30-70%	10-30%	
BW-S-PI-2_P06	24/05/2023	Degraded	5	>70%	10-30%	Weed cover has increased across mostly cleared site.,
BW-S-PI-2_P06	30/09/2023	Degraded	5	>70%	10-30%	Weed cover has increased across mostly cleared site.,
BW-S-PI-2_P06	27/05/2024	Degraded	4	>70%	10-30%	Weed cover has increased across mostly cleared site. 2024 tree canopy has thinned across all sp to about 70%,
BW-S-PI-2_P06	15/11/2024	Degraded	4	>70%	10-30%	Weed cover has increased across mostly cleared site. 2024 tree canopy has thinned across all sp to about 70%. 24Sp site stable.,
BW-S-PI-2_P06	23/05/2025	Degraded	4	>70%	10-30%	Weed cover has increased across mostly cleared site. 2024 tree canopy has thinned across all sp to about 70%. 24Sp site stable.,
BW-S-PI-2_P06	17/10/2025	Degraded	4	>70%	10-30%	S25 site stable.
BW-S-PI-2_P06	25/05/2026	Degraded	4	>70%	10-30%	Site stable
BW-S-PI-3_P01	21/11/2019	Very good		<2%		
BW-S-PI-3_P01	20/05/2020	Very good		<2%	30-70%	
BW-S-PI-3_P01	09/09/2020	Very good		<2%	30-70%	
BW-S-PI-3_P01	13/10/2021	Very good	5	10-30%	30-70%	Exotic grasses have increased, B maxima. ,
BW-S-PI-3_P01	25/05/2022	Very good	5	10-30%	30-70%	Exotic grasses have increased, B maxima. ,
BW-S-PI-3_P01	17/10/2022	Very good	5	10-30%	30-70%	Exotic grasses have increased, B maxima. ,
BW-S-PI-3_P01	24/05/2023	Very good	5	10-30%	30-70%	Exotic grasses have increased, B maxima. ,
BW-S-PI-3_P01	30/09/2023	Very good	5	10-30%	30-70%	Exotic grasses have increased, B maxima. ,
BW-S-PI-3_P01	27/05/2024	Very good		10-30%	30-70%	Exotic grasses have increased, B maxima. Tree canopy has thinned to about 75 %. No deaths , understory ok,
BW-S-PI-3_P01	15/11/2024	Very good	4	10-30%	30-70%	Exotic grasses have increased, B maxima. Tree canopy has thinned to about 75 %. No deaths , understory ok. 24Sp weed cover has decreased? Bmax absent? Tree stress at 75%,
BW-S-PI-3_P01	23/05/2025	Very good	4	10-30%	30-70%	Exotic grasses have increased, B maxima. Tree canopy has thinned to about 75 %. No deaths , understory ok. 24Sp weed cover has decreased? Bmax absent? Tree stress at 75%,
BW-S-PI-3_P01	17/10/2025	Very good	4	10-30%	30-70%	S25 weed load is almost not evident. Site could be called Ex.
BW-S-PI-3_P01	25/05/2026	Very good	4	10-30%	30-70%	No access, the site is now private property

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-3_P02	21/11/2019	Very good		<2%		Possible historically cleared? Of trees,
BW-S-PI-3_P02	20/05/2020	Very good		<2%	30-70%	Possible historically cleared? Of trees,
BW-S-PI-3_P02	28/10/2020	Very good	4	2-10%	30-70%	Possible historically cleared? Of trees,
BW-S-PI-3_P02	13/10/2021	Very good	4	10-30%	30-70%	Note flat weed and grasses have increased ,
BW-S-PI-3_P02	25/05/2022	Very good	4	10-30%	30-70%	Trees appear healthy, but crowns are still thin.,
BW-S-PI-3_P02	17/10/2022	Very good	4	10-30%	30-70%	Trees appear healthy, but crowns are still thin.,
BW-S-PI-3_P02	24/05/2023	Very good	4	10-30%	30-70%	Trees appear healthy, but crowns are still thin.,
BW-S-PI-3_P02	30/09/2023	Very good	4	10-30%	30-70%	Trees appear healthy, but crowns are still thin. Per previous monitoring round. ,
BW-S-PI-3_P02	27/05/2024	Very good	4	10-30%	30-70%	Trees appear healthy, but crowns are still thin. Per previous monitoring round. 2024 stable, perhaps more loss of leaves on jarrah trees .,
BW-S-PI-3_P02	15/11/2024	Very good	4	10-30%	30-70%	Trees appear healthy, but crowns are still thin. Per previous monitoring round. 2024 stable, perhaps more loss of leaves on jarrah trees .24 Sp site is stable.,
BW-S-PI-3_P02	23/05/2025	Very good	4	10-30%	30-70%	Trees appear healthy, but crowns are still thin. Per previous monitoring round. 2024 stable, perhaps more loss of leaves on jarrah trees .24 Sp site is stable.,
BW-S-PI-3_P02	17/10/2025	Very good	4	10-30%	30-70%	S25 Em, Cc still thin.
BW-S-PI-3_P02	25/05/2026	Very good	4	10-30%	30-70%	Assessed over fence, per S24
BW-S-PI-3_P03	21/11/2019	Very good		<2%		
BW-S-PI-3_P03	20/05/2020	Very good		<2%	30-70%	
BW-S-PI-3_P03	28/10/2020	Very good	5	10-30%	30-70%	
BW-S-PI-3_P03	13/10/2021	Very good	5	10-30%	30-70%	
BW-S-PI-3_P03	25/05/2022	Very good	5	10-30%	30-70%	
BW-S-PI-3_P03	17/10/2022	Very good	5	10-30%	30-70%	
BW-S-PI-3_P03	24/05/2023	Very good	5	10-30%	30-70%	
BW-S-PI-3_P03	30/09/2023	Very good	5	10-30%	30-70%	Weeds are increasing but still 10-30%. Crowns of marri and jarrah are thinning, still 5,
BW-S-PI-3_P03	27/05/2024	Very good	5	10-30%	30-70%	Weeds are increasing but still 10-30%. Crowns of marri and jarrah are thinning, still 5. 2024 site stable, jarrah trees in background stressed most appear affected by borer . Pic 212,213. Understory ok.,
BW-S-PI-3_P03	15/11/2024	Very good	5	10-30%	30-70%	Weeds are increasing but still 10-30%. Crowns of marri and jarrah are thinning, still 5. 2024 site stable, jarrah trees in background stressed most appear affected by borer . Pic 212,213. Understory ok.24Sp per previous monitoring round.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-3_P03	23/05/2025	Very good	5	10-30%	30-70%	Weeds are increasing but still 10-30%. Crowns of marri and jarrah are thinning, still 5. 2024 site stable, jarrah trees in background stressed most appear affected by borer . Pic 212,213. Understory ok.24Sp per previous monitoring round.,
BW-S-PI-3_P03	17/10/2025	Very good	5	10-30%	30-70%	S25, weed load has reduced, perhaps due to leaf litter. Em in background almost dead, some epi growth.
BW-S-PI-3_P03	25/05/2026	Very good	4	2-10%	30-70%	Em trees have thinned. Else other veg appears stable. Weed cover is low, perhaps due to no Autumn rain.
BW-S-PI-3_P04	21/11/2019	Excellent		<2%		
BW-S-PI-3_P04	20/05/2020	Excellent		<2%	30-70%	
BW-S-PI-3_P04	28/10/2020	Excellent	5	<2%	30-70%	
BW-S-PI-3_P04	13/10/2021	Excellent	5	<2%	30-70%	
BW-S-PI-3_P04	25/05/2022	Excellent	5	<2%	30-70%	Dead kunzea has fallen in previous storms. ,
BW-S-PI-3_P04	17/10/2022	Excellent	5	<2%	30-70%	Dead kunzea has fallen in previous storms. ,
BW-S-PI-3_P04	24/05/2023	Excellent	5	<2%	30-70%	Dead Kunzea has fallen in previous storms. ,
BW-S-PI-3_P04	30/09/2023	Excellent	5	<2%	30-70%	Dead kunzea has fallen in previous storms. ,
BW-S-PI-3_P04	27/05/2024	Excellent	5	<2%	30-70%	Dead kunzea has fallen in previous storms. Site appears stable and healthy, perhaps not affected by dieback, evidence of previous burn. ,
BW-S-PI-3_P04	15/11/2024	Excellent	5	<2%	30-70%	Dead kunzea has fallen in previous storms. Site appears stable and healthy, perhaps not affected by dieback, evidence of previous burn. 24Sp site stable, need to check dieback mapping. Pic 2926,
BW-S-PI-3_P04	23/05/2025	Excellent	5	<2%	30-70%	Dead kunzea has fallen in previous storms. Site appears stable and healthy, perhaps not affected by dieback, evidence of previous burn. 24Sp site stable, need to check dieback mapping. Pic 2926,
BW-S-PI-3_P04	17/10/2025	Excellent	4	<2%	30-70%	All em within site have thinned to 4. Pic 5972
BW-S-PI-3_P04	25/05/2026	Excellent	4	<2%	30-70%	Em still a 4, other veg is stable.
BW-S-PI-3_P05	21/11/2019	Excellent		<2%		
BW-S-PI-3_P05	20/05/2020	Excellent		<2%	30-70%	
BW-S-PI-3_P05	28/10/2020	Excellent	5	<2%	30-70%	
BW-S-PI-3_P05	13/10/2021	Excellent	5	<2%	30-70%	
BW-S-PI-3_P05	25/05/2022	Excellent	5	<2%	30-70%	Trees have died due to fire/ dieback ,
BW-S-PI-3_P05	17/10/2022	Excellent	5	<2%	30-70%	Trees have died due to fire/ dieback. Remaining trees are healthy and have the 5 health rating. ,
BW-S-PI-3_P05	24/05/2023	Excellent	5	<2%	30-70%	Trees have died due to fire/ dieback. Remaining trees are healthy and have the 5 health rating. ,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-3_P05	30/09/2023	Excellent	4	<2%	30-70%	Trees have died due to fire/ dieback. Remaining trees are healthy and have the 5 health rating. Banksia and Jarrah trees in background are stressed.,
BW-S-PI-3_P05	27/05/2024	Very good	4	<2%	30-70%	2024 Ba and Em trees are now very stressed site is about 50% canopy. Borer damage pic 2014Understory veg ok. Perhaps fire and drought. VG because structure clears altered with most trees dead / very stressed. Check dieback mapping.,
BW-S-PI-3_P05	15/11/2024	Very good	3	<2%	30-70%	Check dieback mapping. 24 Sp Ba & Bi dead, Em stressed, 3 rating. Understory ok. ,
BW-S-PI-3_P05	23/05/2025	Very good	3	<2%	30-70%	Check dieback mapping. 24 Sp Ba & Bi dead, Em stressed, 3 rating. Understory ok. ,
BW-S-PI-3_P05	17/10/2025	Very good	3	<2%	30-70%	S25 em still stressed. 3 rating. Understory ok.
BW-S-PI-3_P05	25/05/2026	Very good	3	<2%	30-70%	Per S25, except fire break work has made a mess of the bushland edge.
BW-S-PI-3_P06	21/11/2019	Very good		<2%		
BW-S-PI-3_P06	20/05/2020	Very good		<2%	30-70%	
BW-S-PI-3_P06	28/10/2020	Very good	4	2-10%	30-70%	Jarrah is thin,
BW-S-PI-3_P06	13/10/2021	Very good	4	2-10%	30-70%	
BW-S-PI-3_P06	25/05/2022	Very good	4	2-10%	30-70%	Fire impacts are between 1-10 years,
BW-S-PI-3_P06	17/10/2022	Very good	4	2-10%	30-70%	Fire impacts are between 1-10 years, regrowth evident. ,
BW-S-PI-3_P06	24/05/2023	Very good	3	2-10%	30-70%	Fire impacts are between 1-10 years, regrowth evident. Canopy of jarrah trees is very thin. Dieback appears active with recent death of Macrozamia ,
BW-S-PI-3_P06	30/09/2023	Very good	3	2-10%	30-70%	Fire impacts are between 1-10 years, regrowth evident. Canopy of jarrah trees is very thin. Dieback appears active with recent death of Macrozamia. Site appears stable no recent decline.,
BW-S-PI-3_P06	27/05/2024	Very good	3	2-10%	30-70%	2024 further decline in trees with one medium sized jarrah recently dead. Understory stressed mostly Phlebocarya ciliata Dasypogon isome dead. Pic 211.Macrozamia in foreground very stressed , drought or pc.,
BW-S-PI-3_P06	15/11/2024	Very good	3	2-10%	30-70%	24Sp Em very stressed, hence 3 rating. Pc stressed from aut drought, pic 2925. ,
BW-S-PI-3_P06	23/05/2025	Very good	3	2-10%	30-70%	24Sp Em very stressed, hence 3 rating. Pc stressed from aut drought, pic 2925. ,
BW-S-PI-3_P06	17/10/2025	Very good	3	2-10%	30-70%	S25 site has been accessed for some maintenance work, bit of a mess, but will likely recover.

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-3_P06	25/05/2026	Very good	3	2-10%	30-70%	Firebreak works have made a mess of the edge with mounds pushed into site. Trees in the site are still very stressed. Pic 7981
BW-S-PI-3_P07	21/11/2019	Good		2-10%		
BW-S-PI-3_P07	20/05/2020	Good		2-10%	30-70%	
BW-S-PI-3_P07	28/10/2020	Good	5	10-30%	30-70%	
BW-S-PI-3_P07	13/10/2021	Good	5	10-30%	30-70%	
BW-S-PI-3_P07	25/05/2022	Good	5	10-30%	30-70%	Site has lost much of its canopy and mid story species, due to dieback and perhaps fire,
BW-S-PI-3_P07	17/10/2022	Good	5	10-30%	30-70%	Site has lost much of its canopy and mid story species, due to dieback and perhaps fire, hence its good condition rating.,
BW-S-PI-3_P07	24/05/2023	Good	5	10-30%	30-70%	Site has lost much of its canopy and mid story species, due to dieback and perhaps fire, hence its good condition rating.,
BW-S-PI-3_P07	30/09/2023	Good	5	10-30%	30-70%	Site has lost much of its canopy and mid story species, due to dieback and perhaps fire, hence its good condition rating.,
BW-S-PI-3_P07	27/05/2024	Good	4	10-30%	30-70%	Site has lost much of its canopy and mid story species, due to dieback and perhaps fire, hence its good condition rating. Trees are stressed most at about 75% canopy, jarrah tree recently half dead.,
BW-S-PI-3_P07	31/10/2024	Good	4	10-30%	30-70%	Site has lost much of its canopy and mid story species, due to dieback and perhaps fire, hence its good condition rating. Trees are stressed most at about 75% canopy, jarrah tree recently half dead.2024sp veg looking healthy ,
BW-S-PI-3_P07	23/05/2025	Good	4	10-30%	30-70%	Site has lost much of its canopy and mid story species, due to dieback and perhaps fire, hence its good condition rating. Trees are stressed most at about 75% canopy, jarrah tree recently half dead.2024sp veg looking healthy ,
BW-S-PI-3_P07	17/10/2025	Good	4	10-30%	30-70%	Site stable, note fire access has been recently upgraded. Mounds of earth have been pushed up against the bushland.
BW-S-PI-3_P07	25/05/2026	Good	4	10-30%	30-70%	Site appears stable.
BW-S-PI-4_P01	26/05/2020	Very good		<2%	30-70%	
BW-S-PI-4_P01	28/10/2020	Very good	5	2-10%	30-70%	
BW-S-PI-4_P01	13/10/2021	Very good	5	2-10%	30-70%	
BW-S-PI-4_P01	25/05/2022	Very good	5	2-10%	30-70%	Acacia longifolia also present ,
BW-S-PI-4_P01	17/10/2022	Very good	5	30-70%	30-70%	Acacia longifolia also present , marri blight is still active, weeds increasing.,
BW-S-PI-4_P01	26/05/2023	Very good	5	30-70%	30-70%	Acacia longifolia also present , marri blight is still active, weeds increasing.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-4_P01	29/09/2023	Very good	5	30-70%	30-70%	Acacia longifolia also present , marri blight is still active, weeds increasing.,
BW-S-PI-4_P01	27/05/2024	Very good	4	30-70%	30-70%	2024 marri blight slow but active. Trees stressed 75% canopy all species. Some jarrah affected by wood borer, out side monitoring area. Some Acacia longifolia dead. Drought or control? ,
BW-S-PI-4_P01	14/11/2024	Very good	4	30-70%	30-70%	24 Sp veg appears healthy 4. Blight affected trees ok. 1 Em dead, from drought. ,
BW-S-PI-4_P01	21/05/2025	Very good	4	30-70%	30-70%	24 Sp veg appears healthy 4. Blight affected trees ok. 1 Em dead, from drought. ,
BW-S-PI-4_P01	30/09/2025	Very good	4	30-70%	30-70%	Site stable, no further deterioration.
BW-S-PI-4_P01	25/05/2026	Very good	4	30-70%	30-70%	26 A large blight affected tree in nw stressed - level 3. Else ok.
BW-S-PI-4_P02	26/05/2020	Excellent		<2%	30-70%	
BW-S-PI-4_P02	28/10/2020	Excellent	5	2-10%	30-70%	
BW-S-PI-4_P02	13/10/2021	Excellent	5	2-10%	30-70%	
BW-S-PI-4_P02	25/05/2022	Excellent	5	2-10%	30-70%	Note Acacia longifolia becoming established. ,
BW-S-PI-4_P02	17/10/2022	Very good	5	2-10%	30-70%	Note Acacia longifolia becoming established. Presence of more aggressive weeds lowering veg condition ,
BW-S-PI-4_P02	26/05/2023	Very good	5	2-10%	30-70%	Note Acacia longifolia becoming established. Presence of more aggressive weeds lowering veg condition ,
BW-S-PI-4_P02	29/09/2023	Very good	5	2-10%	30-70%	Note Acacia longifolia becoming established. Presence of more aggressive weeds lowering veg condition . Large marri in the background (out of monitoring area recently dead p2521,
BW-S-PI-4_P02	27/05/2024	Very good	5	2-10%	30-70%	Some stress in canopy but still above 80%. Some scattered stressed / dead Acacia longifolia in background. Pic 207, 208,
BW-S-PI-4_P02	14/11/2024	Very good	5	2-10%	30-70%	Some stress in canopy but still above 80%. Some scattered stressed / dead Acacia longifolia in background. Pic 207, 208. 24 Sp site appears healthy 5. One blight affected marri in back ground stressed 3. Pic 2910.,
BW-S-PI-4_P02	23/05/2025	Very good	5	2-10%	30-70%	Some stress in canopy but still above 80%. Some scattered stressed / dead Acacia longifolia in background. Pic 207, 208. 24 Sp site appears healthy 5. One blight affected marri in back ground stressed 3. Pic 2910.,
BW-S-PI-4_P02	30/09/2025	Very good	5	2-10%	30-70%	Site stable
BW-S-PI-4_P02	25/05/2026	Very good	5	2-10%	30-70%	Site stable canopy still above 80%
BW-S-PI-4_P03	26/05/2020	Excellent		<2%	>70%	
BW-S-PI-4_P03	28/10/2020	Excellent	5	<2%	>70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-4_P03	13/10/2021	Excellent	5	<2%	>70%	
BW-S-PI-4_P03	25/05/2022	Excellent	5	<2%	>70%	
BW-S-PI-4_P03	17/10/2022	Excellent	5	<2%	>70%	
BW-S-PI-4_P03	26/05/2023	Excellent	5	<2%	>70%	
BW-S-PI-4_P03	29/09/2023	Excellent	5	<2%	>70%	
BW-S-PI-4_P03	27/05/2024	Excellent	5	<2%	>70%	2024 site appears stable.,
BW-S-PI-4_P03	14/11/2024	Excellent	4	<2%	>70%	2024 site appears stable. 24 Sp some increase in stress, trees have about 75 % foliage. Em in sw 3. ,
BW-S-PI-4_P03	23/05/2025	Excellent	4	<2%	>70%	2024 site appears stable. 24 Sp some increase in stress, trees have about 75 % foliage. Em in sw 3. ,
BW-S-PI-4_P03	30/09/2025	Excellent	4	<2%	>70%	Site stable.
BW-S-PI-4_P03	25/05/2026	Excellent	4	<2%	>70%	Site is stable.
BW-S-PI-4_P04	26/05/2020	Excellent		<2%	30-70%	
BW-S-PI-4_P05	26/05/2020	Very good		<2%	30-70%	
BW-S-PI-4_P05	28/10/2020	Very good	4	<2%	30-70%	
BW-S-PI-4_P05	13/10/2021	Very good	4	2-10%	30-70%	Briza has increased at the site ,
BW-S-PI-4_P05	25/05/2022	Very good	4	2-10%	30-70%	Crowns in large marri and jarrah are thin,
BW-S-PI-4_P05	17/10/2022	Very good	4	2-10%	30-70%	Crowns in large marri and jarrah are thin,
BW-S-PI-4_P05	26/05/2023	Very good	4	2-10%	30-70%	Crowns in large marri and jarrah are thin,
BW-S-PI-4_P05	29/09/2023	Very good	4	2-10%	30-70%	Crowns in large marri and jarrah are thin,
BW-S-PI-4_P05	27/05/2024	Very good	4	2-10%	30-70%	Crowns in large marri and jarrah are thin. 2024 per 2023 + young Persoonia longifolia dead in site, scattered Acacia longifolia dead in background due to drought/ control?pic 209 isolated young jarrah stressed/ dead , Xylomelon stressed Understory ok ,
BW-S-PI-4_P05	14/11/2024	Very good	4	2-10%	30-70%	24Sp site healthy, remaining veg healthy but saplings are thin Xo healthy. Blight affected trees are stressed. ,
BW-S-PI-4_P05	22/05/2025	Very good	4	2-10%	30-70%	24Sp site healthy, remaining veg healthy but saplings are thin Xo healthy. Blight affected trees are stressed. ,
BW-S-PI-4_P05	30/09/2025	Very good	4	2-10%	30-70%	Large marri stressed. One dead banksia, but otherwise healthy. No pattern linked to Borr.
BW-S-PI-4_P05	25/05/2026	Very good	4	<2%	30-70%	Per 25 sp.
BW-S-PI-5_P01	20/11/2019	Good		<2%		
BW-S-PI-5_P01	22/05/2020	Good		<2%	10-30%	
BW-S-PI-5_P01	23/10/2020	Good	4	<2%	10-30%	
BW-S-PI-5_P01	14/10/2021	Good	4	<2%	10-30%	
BW-S-PI-5_P01	25/05/2022	Good	4	<2%	10-30%	New Acacia iteaphylla infestation ,
BW-S-PI-5_P01	20/10/2022	Good	5	2-10%	10-30%	New Acacia iteaphylla infestation ,
BW-S-PI-5_P01	25/05/2023	Good	5	2-10%	10-30%	New Acacia iteaphylla infestation ,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P01	29/09/2023	Good	5	2-10%	10-30%	New Acacia iteaphylla infestation, Peppi litter suppressing weeds ,
BW-S-PI-5_P01	24/05/2024	Good	5	2-10%	10-30%	New Acacia iteaphylla infestation, Peppi litter suppressing weeds, 2024 per 2023.,
BW-S-PI-5_P01	15/11/2024	Good	5	2-10%	10-30%	New Acacia iteaphylla infestation, Peppi litter suppressing weeds, 2024 per 2023. 24 Sp site stable.,
BW-S-PI-5_P01	23/05/2025	Good	5	2-10%	10-30%	New Acacia iteaphylla infestation, Peppi litter suppressing weeds, 2024 per 2023. 24 Sp site stable.,25 A site stable.
BW-S-PI-5_P01	30/09/2025	Good	5	2-10%	10-30%	25s stable
BW-S-PI-5_P01	25/05/2026	Good	5	2-10%	10-30%	Site stable
BW-S-PI-5_P02	20/11/2019	Good		<2%		
BW-S-PI-5_P02	22/05/2020	Good		<2%	10-30%	
BW-S-PI-5_P02	23/10/2020	Good	5	2-10%	10-30%	
BW-S-PI-5_P02	14/10/2021	Good	5	10-30%	10-30%	Increase in exotic grasses ,
BW-S-PI-5_P02	25/05/2022	Good	5	30-70%	10-30%	Increase in exotic grasses ,
BW-S-PI-5_P02	20/10/2022	Good	5	>70%	10-30%	Increase in exotic grasses ,
BW-S-PI-5_P02	25/05/2023	Good	5	>70%	10-30%	Increase in exotic grasses ,
BW-S-PI-5_P02	29/09/2023	Good	5	>70%	10-30%	Increase in exotic grasses ,
BW-S-PI-5_P02	24/05/2024	Good	5	>70%	10-30%	Increase in exotic grasses. 2024 per 2023.,
BW-S-PI-5_P02	15/11/2024	Good	5	>70%	10-30%	Increase in exotic grasses. 2024 per 2023. 24Sp site stable.,
BW-S-PI-5_P02	23/05/2025	Good	5	>70%	10-30%	Increase in exotic grasses. 2024 per 2023. 24Sp site stable.,Site is stable, weeds appear to be suppressed by leaf litter.
BW-S-PI-5_P02	30/09/2025	Good	5	>70%	10-30%	Weeds suppressed still. Some Relictual drought stress , but the site is stable.
BW-S-PI-5_P02	25/05/2026	Good	5	>70%	10-30%	A26, per S25
BW-S-PI-5_P03	20/11/2019	Very good		<2%		
BW-S-PI-5_P03	22/05/2020	Very good		<2%	30-70%	
BW-S-PI-5_P03	23/10/2020	Very good	4	10-30%	30-70%	
BW-S-PI-5_P03	14/10/2021	Very good	4	10-30%	30-70%	
BW-S-PI-5_P03	25/05/2022	Very good	4	10-30%	30-70%	
BW-S-PI-5_P03	20/10/2022	Very good	4	10-30%	30-70%	Veg structure and diversity intact,
BW-S-PI-5_P03	25/05/2023	Very good	4	10-30%	30-70%	Veg structure and diversity intact,
BW-S-PI-5_P03	29/09/2023	Very good	4	10-30%	30-70%	Veg structure and diversity intact, but weeds increasing ,
BW-S-PI-5_P03	24/05/2024	Very good	4	10-30%	30-70%	Veg structure and diversity intact, but weeds increasing. Recent deaths in stressed small marri most likely due to borer, pic 191.,
BW-S-PI-5_P03	15/11/2024	Very good	4	10-30%	30-70%	Veg structure and diversity intact, but weeds increasing. Recent deaths in stressed small marri most likely due to borer, pic 191. 24Sp site stable.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P03	23/05/2025	Good	4	10-30%	30-70%	Veg structure and diversity intact, but weeds increasing. Recent deaths in stressed small marri most likely due to borer, pic 191. 24Sp site stable.,25A weed cover has increased such that it is no longer Vg. Understory is thin too
BW-S-PI-5_P03	30/09/2025	Good	4	30-70%	30-70%	25sp weed cover has increased. Site stable.
BW-S-PI-5_P03	25/05/2026	Good	4	30-70%	30-70%	25 a stable.
BW-S-PI-5_P04	30/07/2020	Excellent		<2%	30-70%	
BW-S-PI-5_P04	09/09/2020	Excellent		<2%	30-70%	
BW-S-PI-5_P04	14/10/2021	Excellent	5	<2%	30-70%	Increase in native herbs,
BW-S-PI-5_P04	25/05/2022	Excellent	5	<2%	30-70%	Increase in native herbs,
BW-S-PI-5_P04	20/10/2022	Very good	5	10-30%	30-70%	Site has a high concentration of Briza maxima ,
BW-S-PI-5_P04	25/05/2023	Very good	4	10-30%	30-70%	Site has a high concentration of Briza maxima , crowns of jarrah and banksia are thin.,
BW-S-PI-5_P04	29/09/2023	Very good	4	10-30%	30-70%	Site has a high concentration of Briza maxima , crowns of jarrah and banksia are thin.,
BW-S-PI-5_P04	24/05/2024	Very good	4	10-30%	30-70%	Site has a high concentration of Briza maxima , crowns of jarrah and banksia are thin. 2024 canopy thin but overall healthy. One large b grandis dead.,
BW-S-PI-5_P04	15/11/2024	Very good	4	10-30%	30-70%	Site has a high concentration of Briza maxima , crowns of jarrah and banksia are thin. 2024 canopy thin but overall healthy. One large b grandis dead. 24 sp site stable.,
BW-S-PI-5_P04	23/05/2025	Very good	4	10-30%	30-70%	Site has a high concentration of Briza maxima , crowns of jarrah and banksia are thin. 2024 canopy thin but overall healthy. One large b grandis dead. 24 sp site stable.,25A site is stable.
BW-S-PI-5_P04	30/09/2025	Very good	4	10-30%	30-70%	25 sp Site is stable
BW-S-PI-5_P04	25/05/2026	Very good	4	10-30%	30-70%	26 A site stable.
BW-S-PI-5_P05	30/07/2020	Very good		2-10%	30-70%	
BW-S-PI-5_P05	23/10/2020	Very good	3	2-10%	30-70%	
BW-S-PI-5_P05	14/10/2021	Very good	3	2-10%	30-70%	
BW-S-PI-5_P05	25/05/2022	Very good	4	2-10%	30-70%	Crowns are reasonably healthy ,
BW-S-PI-5_P05	20/10/2022	Very good	4	2-10%	30-70%	Crowns are reasonably healthy ,
BW-S-PI-5_P05	25/05/2023	Very good	4	2-10%	30-70%	Crowns are reasonably healthy ,
BW-S-PI-5_P05	29/09/2023	Very good	4	10-30%	30-70%	Crowns are reasonably healthy, weeds have increased ,
BW-S-PI-5_P05	24/05/2024	Very good	4	10-30%	30-70%	Crowns are reasonably healthy, weeds have increased, 2024 canopy healthy, some stress in Hh.,
BW-S-PI-5_P05	15/11/2024	Very good	4	10-30%	30-70%	Crowns are reasonably healthy, weeds have increased, 2024 canopy healthy, some stress in Hh. 24Sp site stable, but large em cc in background stressed.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P05	23/05/2025	Very good	4	10-30%	30-70%	Crowns are reasonably healthy, weeds have increased, 2024 canopy healthy, some stress in Hh. 24Sp site stable, but large em cc in background stressed.,A25 site stable.
BW-S-PI-5_P05	30/09/2025	Very good	4	10-30%	30-70%	Site stable, some Relictual stress.
BW-S-PI-5_P05	25/05/2026	Very good	4	10-30%	30-70%	Site stable.
BW-S-PI-5_P06	30/07/2020	Good		30-70%	30-70%	
BW-S-PI-5_P06	23/10/2020	Good	4	30-70%	30-70%	
BW-S-PI-5_P06	14/10/2021	Good	4	30-70%	30-70%	
BW-S-PI-5_P06	25/05/2022	Good	4	30-70%	30-70%	
BW-S-PI-5_P06	20/10/2022	Good	5	>70%	30-70%	
BW-S-PI-5_P06	25/05/2023	Good	5	>70%	30-70%	
BW-S-PI-5_P06	29/09/2023	Good	5	>70%	30-70%	
BW-S-PI-5_P06	24/05/2024	Good	5	>70%	30-70%	Site appears healthy ,
BW-S-PI-5_P06	15/11/2024	Good	5	>70%	30-70%	Site appears healthy. 24Sp site stable.,
BW-S-PI-5_P06	23/05/2025	Good	5	>70%	30-70%	Site appears healthy. 24Sp site stable.,Site is overall Good, part is degraded .
BW-S-PI-5_P07	20/11/2019	Good		30-70%		Adjacent power line ,
BW-S-PI-5_P07	22/05/2020	Good		30-70%		Adjacent power line,
BW-S-PI-5_P07	23/10/2020	Good	4	30-70%	30-70%	Adjacent power line,
BW-S-PI-5_P07	14/10/2021	Good	5	30-70%	30-70%	Tree health is really good ,
BW-S-PI-5_P07	25/05/2022	Good	5	30-70%	30-70%	Tree health is really good ,
BW-S-PI-5_P07	20/10/2022	Good	5	>70%	30-70%	Tree health is really good , Oxalis glabra and O. Pescaprae increasing, along with Briza maxima ,
BW-S-PI-5_P07	25/05/2023	Good	5	>70%	30-70%	Tree health is really good , Oxalis glabra and O. Pes-caprae increasing, along with Briza maxima ,
BW-S-PI-5_P07	29/09/2023	Good	5	>70%	30-70%	Tree health is really good , Oxalis glabra and O. Pescaprae increasing, along with Briza maxima ,
BW-S-PI-5_P07	24/05/2024	Good	5	>70%	30-70%	Tree health is really good , Oxalis glabra and O. Pescaprae increasing, along with Briza maxima. 2024 canopy health good, butt One b grandis sapling dead.,
BW-S-PI-5_P07	15/11/2024	Good	5	>70%	30-70%	Tree health is really good , Oxalis glabra and O. Pescaprae increasing, along with Briza maxima. 2024 canopy health good, butt One b grandis sapling dead. 24Sp site stable.,
BW-S-PI-5_P07	23/05/2025	Good	5	>70%	30-70%	Tree health is really good , Oxalis glabra and O. Pescaprae increasing, along with Briza maxima. 2024 canopy health good, butt One b grandis sapling dead. 24Sp site stable.,A25 site is stable.
BW-S-PI-5_P07	30/09/2025	Good	5	>70%	30-70%	Sp stable.
BW-S-PI-5_P07	25/05/2026	Good	5	>70%	30-70%	Site is stable.
BW-S-PI-5_P08	20/11/2019	Good		2-10%		
BW-S-PI-5_P08	22/05/2020	Good		2-10%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P08	23/10/2020	Good	4	10-30%	30-70%	
BW-S-PI-5_P08	14/10/2021	Good	4	30-70%	30-70%	Understory shrubs Ap, and M thy very reduced ,
BW-S-PI-5_P08	25/05/2022	Good	4	30-70%	30-70%	Dipogon lignosus infestation, Oxalis pes-caprae spreading also. ,
BW-S-PI-5_P08	20/10/2022	Good	4	>70%	30-70%	Dipogon lignosus infestation, Oxalis pes-caprae spreading also. Briza maxima very dense. Locally good. ,
BW-S-PI-5_P08	25/05/2023	Good	4	>70%	30-70%	Dipogon lignosus infestation, Oxalis pes-caprae spreading also. Briza maxima very dense. Locally good. Dipogon appears to have been controlled.,
BW-S-PI-5_P08	29/09/2023	Good	4	>70%	30-70%	Dipogon lignosus infestation, Oxalis pes-caprae spreading also. Briza maxima very dense. Locally good. Dipogon appears to have been controlled.,
BW-S-PI-5_P08	24/05/2024	Good	4	>70%	30-70%	Dipogon lignosus infestation, Oxalis pes-caprae spreading also. Briza maxima very dense. Locally good. Dipogon appears to have been controlled. 2024 per 2023.,
BW-S-PI-5_P08	15/11/2024	Good	4	>70%	30-70%	Dipogon lignosus infestation, Oxalis pes-caprae spreading also. Briza maxima very dense. Locally good. Dipogon appears to have been controlled. 2024 per 2023. 24Sp stress stable, but weeds increasing, site bordering degraded.,
BW-S-PI-5_P08	23/05/2025	Good	4	>70%	30-70%	Dipogon lignosus infestation, Oxalis pes-caprae spreading also. Briza maxima very dense. Locally good. Dipogon appears to have been controlled. 2024 per 2023. 24Sp stress stable, but weeds increasing, site bordering degraded.,Site is good and stable.
BW-S-PI-5_P08	30/09/2025	Good	4	>70%	30-70%	Site stable.
BW-S-PI-5_P08	25/05/2026	Good	4	>70%	30-70%	Site stable bridal creeper colonising site. Pic 7964
BW-S-PI-5_P09	20/11/2019	Good		2-10%		
BW-S-PI-5_P09	22/05/2020	Good		2-10%	30-70%	
BW-S-PI-5_P09	23/10/2020	Good	4	10-30%	30-70%	
BW-S-PI-5_P09	14/10/2021	Good	4	30-70%	30-70%	Weeds have increased ,
BW-S-PI-5_P09	25/05/2022	Good	4	30-70%	30-70%	Weeds have increased ,
BW-S-PI-5_P09	20/10/2022	Good	5	30-70%	30-70%	Weeds have increased , site is bordering degraded, basic veg structure across portion of the site is intact, ,
BW-S-PI-5_P09	25/05/2023	Good	5	30-70%	30-70%	Weeds have increased , site is bordering degraded, basic veg structure across portion of the site is intact, ,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P09	29/09/2023	Good	5	30-70%	30-70%	Weeds have increased , site is bordering degraded, basic veg structure across portion of the site is intact, bridal creeper, prickly pear,
BW-S-PI-5_P09	24/05/2024	Good	5	30-70%	30-70%	Weeds have increased , site is bordering degraded, basic veg structure across portion of the site is intact, bridal creeper, prickly pear. 2024 per 2023.,
BW-S-PI-5_P09	15/11/2024	Good	5	>70%	30-70%	Weeds have increased , site is bordering degraded, basic veg structure across portion of the site is intact, bridal creeper, prickly pear. 2024 per 2023. 24Sp weed cover has increased. Site stress is stable.,
BW-S-PI-5_P09	23/05/2025	Degraded	5	>70%	30-70%	Weeds have increased , site is bordering degraded, basic veg structure across portion of the site is intact, bridal creeper, prickly pear. 2024 per 2023. 24Sp weed cover has increased. Site stress is stable.,A25 weed cover has increased, now degraded. Understory largely absent.
BW-S-PI-5_P09	30/09/2025	Degraded	5	>70%	30-70%	Asparagus asparagoides and opuntia present. Site stable.
BW-S-PI-5_P09	25/05/2026	Degraded	5	>70%	30-70%	Site stable.
BW-S-PI-5_P10	20/11/2019	Good		<2%		Geraldton wax along power line ,
BW-S-PI-5_P10	22/05/2020	Good		<2%	30-70%	Geraldton wax along power line,
BW-S-PI-5_P10	23/10/2020	Good	4	2-10%	30-70%	Geraldton wax along power line,
BW-S-PI-5_P10	14/10/2021	Good	4	2-10%	30-70%	Rubbish has been cleaned up,
BW-S-PI-5_P10	25/05/2022	Good	4	10-30%	30-70%	Weed cover increased at site. Near access track. ,
BW-S-PI-5_P10	20/10/2022	Good	5	10-30%	30-70%	Weed cover increased at site. Near access track. This site is bordering degraded. Basic structure is present but weeds are increasing.,
BW-S-PI-5_P10	25/05/2023	Good	5	10-30%	30-70%	Weed cover increased at site. Near access track. This site is bordering degraded. Basic structure is present but weeds are increasing.,
BW-S-PI-5_P10	29/09/2023	Good	5	30-70%	30-70%	Weed cover increased at site. Near access track. This site is bordering degraded. Basic structure is present but weeds are increasing. Some jarrah and Banksia trees cut down.,
BW-S-PI-5_P10	24/05/2024	Good	5	30-70%	30-70%	Weed cover increased at site. Near access track. This site is bordering degraded. Basic structure is present but weeds are increasing. Some jarrah and Banksia trees cut down. 2024 canopy is healthy.,
BW-S-PI-5_P10	15/11/2024	Good	5	30-70%	30-70%	Weed cover increased at site. Near access track. This site is bordering degraded. Basic structure is present but weeds are increasing. Some jarrah and Banksia trees cut down. 2024 canopy is healthy. 24 Sp site is stable.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P10	23/05/2025	Good	5	30-70%	30-70%	Weed cover increased at site. Near access track. This site is bordering degraded. Basic structure is present but weeds are increasing. Some jarrah and Banksia trees cut down. 2024 canopy is healthy. 24 Sp site is stable.,25A site is stable.
BW-S-PI-5_P10	30/09/2025	Good	5	30-70%	30-70%	Site stable.
BW-S-PI-5_P10	25/05/2026	Good	5	30-70%	30-70%	Litter at site has increased.
BW-S-PI-5_P11	20/11/2019	Good		30-70%		
BW-S-PI-5_P11	22/05/2020	Good		30-70%	30-70%	
BW-S-PI-5_P11	23/10/2020	Good	4	30-70%	30-70%	
BW-S-PI-5_P11	14/10/2021	Good	4	30-70%	30-70%	Rubbish cleaned up,
BW-S-PI-5_P11	25/05/2022	Good	4	30-70%	30-70%	
BW-S-PI-5_P11	20/10/2022	Good	5	30-70%	30-70%	
BW-S-PI-5_P11	25/05/2023	Good	5	30-70%	30-70%	
BW-S-PI-5_P11	29/09/2023	Good	5	30-70%	30-70%	
BW-S-PI-5_P11	24/05/2024	Good	5	30-70%	30-70%	Vegetation appears healthy ,
BW-S-PI-5_P11	15/11/2024	Good	5	30-70%	30-70%	Vegetation appears healthy. 24Sp site stable.,
BW-S-PI-5_P11	23/05/2025	Good	5	30-70%	30-70%	Vegetation appears healthy. 24Sp site stable.,Per previous assessment
BW-S-PI-5_P11	30/09/2025	Good	5	30-70%	30-70%	Site stable.
BW-S-PI-5_P11	25/05/2026	Good	5	30-70%	30-70%	Site stable.
BW-S-PI-5_P12	20/11/2019	Good		2-10%		
BW-S-PI-5_P12	22/05/2020	Good		2-10%	30-70%	
BW-S-PI-5_P12	23/10/2020	Good	4	2-10%	30-70%	
BW-S-PI-5_P12	14/10/2021	Good	4	2-10%	30-70%	Litter cleaned up,
BW-S-PI-5_P12	25/05/2022	Good	4	2-10%	30-70%	
BW-S-PI-5_P12	20/10/2022	Good	5	2-10%	30-70%	Canopy crown is healthy ,
BW-S-PI-5_P12	25/05/2023	Good	5	2-10%	30-70%	Canopy crown is healthy ,
BW-S-PI-5_P12	29/09/2023	Good	5	2-10%	30-70%	Canopy crown is healthy ,
BW-S-PI-5_P12	24/05/2024	Good	5	2-10%	30-70%	Canopy crown is healthy, 2024 vegetation appears healthy. The absence of annual weeds makes the site look suitable for a very good condition rating.,
BW-S-PI-5_P12	15/11/2024	Good	5	2-10%	30-70%	Canopy crown is healthy, 2024 vegetation appears healthy. The absence of annual weeds makes the site look suitable for a very good condition rating. 24Sp site stable.,
BW-S-PI-5_P12	23/05/2025	Good	5	2-10%	30-70%	Canopy crown is healthy, 2024 vegetation appears healthy. The absence of annual weeds makes the site look suitable for a very good condition rating. 24Sp site stable.,Per previous assessment
BW-S-PI-5_P12	30/09/2025	Good	5	2-10%	30-70%	Site is stable.
BW-S-PI-5_P12	25/05/2026	Good	5	2-10%	30-70%	Site stable
BW-S-PI-5_P13	30/07/2020	Excellent		<2%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P13	23/10/2020	Excellent	3	<2%	30-70%	
BW-S-PI-5_P13	14/10/2021	Excellent	3	<2%	30-70%	
BW-S-PI-5_P13	25/05/2022	Excellent	3	<2%	30-70%	Crowns of most trees are thin ,
BW-S-PI-5_P13	20/10/2022	Excellent	3	<2%	30-70%	Crowns of most trees are thin , locally excellent, but broadly very good ,
BW-S-PI-5_P13	25/05/2023	Excellent	3	<2%	30-70%	Crowns of most trees are thin , locally excellent, but broadly very good ,
BW-S-PI-5_P13	29/09/2023	Excellent	3	<2%	30-70%	Crowns of most trees are thin , locally excellent, but broadly very good ,
BW-S-PI-5_P13	24/05/2024	Excellent	3	<2%	30-70%	Crowns of most trees are thin , locally excellent, but broadly very good . Large jarrah tree is stressed, branches impacted by borer. Pic 190.,
BW-S-PI-5_P13	15/11/2024	Excellent	3	<2%	30-70%	Crowns of most trees are thin , locally excellent, but broadly very good . Large jarrah tree is stressed, branches impacted by borer. Pic 190. 24Sp jarrah trees are still stressed with 3, almost dead, but ba appears healthy. ,
BW-S-PI-5_P13	23/05/2025	Excellent	3	<2%	30-70%	Crowns of most trees are thin , locally excellent, but broadly very good . Large jarrah tree is stressed, branches impacted by borer. Pic 190. 24Sp jarrah trees are still stressed with 3, almost dead, but ba appears healthy. ,Per Sp 24. Understory healthy.
BW-S-PI-5_P13	25/05/2026	Excellent	4	<2%	30-70%	Large Em still stressed. Overall trees and veg healthy and cover increased.
BW-S-PI-5_P14	30/07/2020	Excellent		<2%	30-70%	
BW-S-PI-5_P14	23/10/2020	Excellent	4	<2%	30-70%	
BW-S-PI-5_P14	14/10/2021	Excellent	4	<2%	30-70%	
BW-S-PI-5_P14	25/05/2022	Excellent	4	<2%	30-70%	
BW-S-PI-5_P14	20/10/2022	Excellent	5	2-10%	30-70%	Veg condition locally maybe excellent, but broadly it is only very good. Briza maxima is increasing ,
BW-S-PI-5_P14	25/05/2023	Excellent	5	2-10%	30-70%	Veg condition locally maybe excellent, but broadly it is only very good. Briza maxima is increasing ,
BW-S-PI-5_P14	29/09/2023	Excellent	5	2-10%	30-70%	Veg condition locally maybe excellent, but broadly it is only very good. Briza maxima is increasing ,
BW-S-PI-5_P14	24/05/2024	Excellent	5	2-10%	30-70%	Veg condition locally maybe excellent, but broadly it is only very good. Briza maxima is increasing. 2024 site looks healthy when few weeds present. Canopy healthy.,
BW-S-PI-5_P14	15/11/2024	Excellent	5	2-10%	30-70%	Veg condition locally maybe excellent, but broadly it is only very good. Briza maxima is increasing. 2024 site looks healthy when few weeds present. Canopy healthy. 24 Sp site stable.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P14	23/05/2025	Excellent	5	2-10%	30-70%	Veg condition locally maybe excellent, but broadly it is only very good. Briza maxima is increasing. 2024 site looks healthy when few weeds present. Canopy healthy. 24 Sp site stable.,Site is stable. Weed load is low, perhaps delayed.
BW-S-PI-5_P14	30/09/2025	Excellent	5	2-10%	30-70%	Weed load 2-10%. Site stable.
BW-S-PI-5_P14	25/05/2026	Excellent	5	2-10%	30-70%	Locally E but broadly Vg. Site stable.
BW-S-PI-5_P15	20/11/2019	Good		10-30%		Note this site 10 of Russell ,
BW-S-PI-5_P15	22/05/2020	Good		10-30%	10-30%	Note this site 10 of Russell,
BW-S-PI-5_P15	23/10/2020	Good	4	10-30%	10-30%	Note this site 10 of Russell,
BW-S-PI-5_P15	14/10/2021	Good	5	10-30%	10-30%	
BW-S-PI-5_P15	25/05/2022	Good	5	10-30%	10-30%	Rubbish dumped at gate ,
BW-S-PI-5_P15	20/10/2022	Good	5	30-70%	10-30%	Rubbish dumped at gate , weed cover has increased substantially. ,
BW-S-PI-5_P15	25/05/2023	Good	5	30-70%	10-30%	Close to recently cleared areas.,
BW-S-PI-5_P15	29/09/2023	Good	5	30-70%	10-30%	Close to recently cleared areas. P2517 few weeds in cleared area ,
BW-S-PI-5_P15	24/05/2024	Good	5	30-70%	10-30%	Close to recently cleared areas. P2517 few weeds in cleared area . 2024 per 2023.,
BW-S-PI-5_P15	15/11/2024	Good	5	30-70%	10-30%	Close to recently cleared areas. P2517 few weeds in cleared area . 2024 per 2023. 24 Sp site stable.,
BW-S-PI-5_P15	23/05/2025	Good	5	30-70%	10-30%	Close to recently cleared areas. P2517 few weeds in cleared area . 2024 per 2023. 24 Sp site stable.,Site stable, close to works.
BW-S-PI-5_P15	30/09/2025	Good	5	30-70%	10-30%	Site stable, no further deterioration. Site close to road. Pic 5476. Revegetation.
BW-S-PI-5_P15	25/05/2026	Good	5	30-70%	10-30%	Site stable. BORR nearby 7963
BW-S-PI-5_P16	20/11/2019	Very good		30-70%		
BW-S-PI-5_P16	22/05/2020	Very good				
BW-S-PI-5_P16	09/09/2020	Very good		30-70%	30-70%	
BW-S-PI-5_P16	14/10/2021	Very good	4	30-70%	30-70%	No photo mon point for this fulcrum point. New photo mon point established ,
BW-S-PI-5_P16	25/05/2022	Very good	4	30-70%	30-70%	No photo mon point for this fulcrum point. New photo mon point established ,
BW-S-PI-5_P16	20/10/2022	Very good	4	30-70%	30-70%	No photo mon point for this fulcrum point. New photo mon point established, Weed cover increasing.,
BW-S-PI-5_P16	25/05/2023	Very good	4	30-70%	30-70%	No photo mon point for this fulcrum point. New photo mon point established, Weed cover increasing. Crowns look reasonably healthy.,
BW-S-PI-5_P16	29/09/2023	Very good	4	30-70%	30-70%	No photo mon point for this fulcrum point. New photo mon point established, Weed cover increasing. Crowns look reasonably healthy.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P16	24/05/2024	Very good	4	30-70%	30-70%	No photo mon point for this fulcrum point. New photo mon point established, Weed cover increasing. Crowns look reasonably healthy. per 2023, 1-2 banksia grandis saplings dead in background. Surrounding veg ok.,
BW-S-PI-5_P16	15/11/2024	Very good	4	30-70%	30-70%	No photo mon point for this fulcrum point. New photo mon point established, Weed cover increasing. Crowns look reasonably healthy. per 2023, 1-2 banksia grandis saplings dead in background. Surrounding veg ok. 24 sp stable. ,
BW-S-PI-5_P16	23/05/2025	Very good	4	30-70%	30-70%	No photo mon point for this fulcrum point. New photo mon point established, Weed cover increasing. Crowns look reasonably healthy. per 2023, 1-2 banksia grandis saplings dead in background. Surrounding veg ok. 24 sp stable. ,Site is healthy , stable, jarrah to south almost dead.
BW-S-PI-5_P16	30/09/2025	Very good	4	10-30%	30-70%	Site has not deteriorated further.
BW-S-PI-5_P16	25/05/2026	Very good	4	10-30%	30-70%	Site stable
BW-S-PI-5_P17	20/11/2019	Very good		10-30%		
BW-S-PI-5_P17	22/05/2020	Very good		10-30%	30-70%	
BW-S-PI-5_P17	23/10/2020	Very good	4	10-30%	30-70%	
BW-S-PI-5_P17	14/10/2021	Very good	4	,10-30%	30-70%	
BW-S-PI-5_P17	25/05/2022	Very good	4	10-30%	30-70%	
BW-S-PI-5_P17	20/10/2022	Very good	4	10-30%	30-70%	
BW-S-PI-5_P17	25/05/2023	Very good	4	10-30%	30-70%	
BW-S-PI-5_P17	29/09/2023	Very good	4	10-30%	30-70%	
BW-S-PI-5_P17	24/05/2024	Very good	4	10-30%	30-70%	Site appears stable , but most Hh very stressed.,
BW-S-PI-5_P17	15/11/2024	Very good	4	10-30%	30-70%	Site appears stable , but most Hh very stressed. 24Sp trees and shrubs 4. Hh 3 from drought.,
BW-S-PI-5_P17	23/05/2025	Very good	4	10-30%	30-70%	Site appears stable , but most Hh very stressed. 24Sp trees and shrubs 4. Hh 3 from drought.,
BW-S-PI-5_P17	30/09/2025	Very good	4	10-30%	30-70%	Relictual stress in Hh and Phlebocarya still evident . But site still stable. No further stress evident.
BW-S-PI-5_P17	25/05/2026	Very good	4	10-30%	30-70%	Per S2025
BW-S-PI-5_P18	20/11/2019	Very good		10-30%		
BW-S-PI-5_P18	22/05/2020	Very good		10-30%	30-70%	Drought effects in Jarrah,
BW-S-PI-5_P18	23/10/2020	Very good	3	10-30%	30-70%	Drought effects in Jarrah,
BW-S-PI-5_P18	14/10/2021	Very good	4	10-30%	30-70%	
BW-S-PI-5_P18	25/05/2022	Very good	4	10-30%	30-70%	
BW-S-PI-5_P18	20/10/2022	Very good	4	10-30%	30-70%	
BW-S-PI-5_P18	25/05/2023	Very good	4	10-30%	30-70%	Large Marri very stressed.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P18	29/09/2023	Very good	4	10-30%	30-70%	"Large Marri very stressed. Has recovered somewhat but still very stressed.
BW-S-PI-5_P18	24/05/2024	Very good	4	10-30%	30-70%	"Large Marri very stressed. Has recovered somewhat but still very stressed. 2024 per 2023, 1-2 scattered b grandis and jarrah sapling dead in background
BW-S-PI-5_P18	15/11/2024	Very good	4	10-30%	30-70%	Large Marri very stressed. Has recovered somewhat but still very stressed. 2024 per 2023, 1-2 scattered b grandis and jarrah sapling dead in background. 24Sp Trees and shrubs 4, Hh stress wide spread almost all 3. Pic 2922. ,
BW-S-PI-5_P18	23/05/2025	Very good	4	10-30%	30-70%	Large Marri very stressed. Has recovered somewhat but still very stressed. 2024 per 2023, 1-2 scattered b grandis and jarrah sapling dead in background. 24Sp Trees and shrubs 4, Hh stress wide spread almost all 3. Pic 2922. ,Large Marri appears dead. Other canopy 60%. Hh about 60% relictual stress
BW-S-PI-5_P18	30/09/2025	Very good	4	10-30%	30-70%	Per A25 , no further decline.
BW-S-PI-5_P18	25/05/2026	Very good	4	10-30%	30-70%	Large Marri dead. Hh is recovering, but 40% of bushes dead, like most other sites. Veg Near Borr healthy.pic 6961
BW-S-PI-5_P19	20/11/2019	Very good		2-10%		
BW-S-PI-5_P19	22/05/2020	Very good		2-10%	30-70%	Drought effects in Jarrah,
BW-S-PI-5_P19	23/10/2020	Very good	3	10-30%	30-70%	Drought effects in Jarrah,
BW-S-PI-5_P19	14/10/2021	Very good	3	10-30%	30-70%	
BW-S-PI-5_P19	25/05/2022	Very good	4	10-30%	30-70%	Tree crowns look ok, 4 score ok,
BW-S-PI-5_P19	20/10/2022	Very good	4	10-30%	30-70%	Tree crowns look ok, 4 score ok,
BW-S-PI-5_P19	25/05/2023	Very good	4	10-30%	30-70%	Tree crowns look ok, 4 score ok,
BW-S-PI-5_P19	29/09/2023	Very good	4	10-30%	30-70%	Tree crowns look ok, 4 score ok,
BW-S-PI-5_P19	24/05/2024	Very good	4	10-30%	30-70%	Tree crowns look ok, 4 score ok, per 2023 sight looks ok, no dead canopy. Some stressed Hh.,
BW-S-PI-5_P19	15/11/2024	Very good	4	10-30%	30-70%	Tree crowns look ok, 4 score ok, per 2023 sight looks ok, no dead canopy. Some stressed Hh. 24Sp site is stable, close to BORR.pic 2922,
BW-S-PI-5_P19	23/05/2025	Very good	4	10-30%	30-70%	Tree crowns look ok, 4 score ok, per 2023 sight looks ok, no dead canopy. Some stressed Hh. 24Sp site is stable, close to BORR.pic 2922,Canopy 4, Hh about 60%. Dead Banksia has fallen across the site.
BW-S-PI-5_P19	30/09/2025	Very good	4	10-30%	30-70%	Per a25, no further decline in stress or condition.
BW-S-PI-5_P19	25/05/2026	Very good	4	10-30%	30-70%	Site stable.
BW-S-PI-5_P20	20/11/2019	Very good		2-10%		
BW-S-PI-5_P20	22/05/2020	Very good		2-10%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P20	23/10/2020	Very good	3	2-10%	30-70%	
BW-S-PI-5_P20	14/10/2021	Very good	3	2-10%	30-70%	
BW-S-PI-5_P20	25/05/2022	Very good	3	2-10%	30-70%	
BW-S-PI-5_P20	20/10/2022	Very good	4	2-10%	30-70%	Canopy health has improved ,
BW-S-PI-5_P20	25/05/2023	Very good	4	2-10%	30-70%	Canopy health has improved , still a 4 rating ,
BW-S-PI-5_P20	29/09/2023	Very good	4	2-10%	30-70%	Canopy health has improved , still a 4 rating ,
BW-S-PI-5_P20	24/05/2024	Very good	4	2-10%	30-70%	Canopy health has improved , still a 4 rating . 2024 per 2023. Site appears largely unstressed. Adjacent borrh works no weeds pic 187 and healthy vegetation.,
BW-S-PI-5_P20	15/11/2024	Very good	4	2-10%	30-70%	Canopy health has improved , still a 4 rating . 2024 per 2023. Site appears largely unstressed. Adjacent borrh works no weeds pic 187 and healthy vegetation. 24 Sp. Site stable. ,
BW-S-PI-5_P20	23/05/2025	Very good	4	2-10%	30-70%	Canopy health has improved , still a 4 rating . 2024 per 2023. Site appears largely unstressed. Adjacent borrh works no weeds pic 187 and healthy vegetation. 24 Sp. Site stable. ,Overall site is healthy
BW-S-PI-5_P20	30/09/2025	Very good	4	2-10%	30-70%	Condition of site is good, some Relictual stress.
BW-S-PI-5_P20	25/05/2026	Very good	4	2-10%	30-70%	Per S25
BW-S-PI-5_P21	20/11/2019	Very good		<2%		
BW-S-PI-5_P21	22/05/2020	Very good		<2%	30-70%	
BW-S-PI-5_P21	23/10/2020	Very good	3	<2%	30-70%	
BW-S-PI-5_P21	14/10/2021	Very good	3	<2%	30-70%	
BW-S-PI-5_P21	25/05/2022	Very good	3	<2%	30-70%	Crowns are thin ,
BW-S-PI-5_P21	20/10/2022	Very good	4	<2%	30-70%	Canopy health has improved ,
BW-S-PI-5_P21	25/05/2023	Very good	4	<2%	30-70%	Canopy health has improved ,
BW-S-PI-5_P21	29/09/2023	Very good	4	<2%	30-70%	Canopy health has improved ,
BW-S-PI-5_P21	24/05/2024	Very good	4	<2%	30-70%	Canopy health has improved , 2024 stable , jarrah sapling dead in background, surrounding veg ok, borer?,
BW-S-PI-5_P21	15/11/2024	Very good	4	<2%	30-70%	Canopy health has improved , 2024 stable , jarrah sapling dead in background, surrounding veg ok, borer? 24 Sp site healthy, but Banksia branch fallen into site. Hh 3.,
BW-S-PI-5_P21	23/05/2025	Very good	4	<2%	30-70%	Canopy health has improved , 2024 stable , jarrah sapling dead in background, surrounding veg ok, borer? 24 Sp site healthy, but Banksia branch fallen into site. Hh 3.,Canopy 4, understory good . Delayed on set of grass weeds.
BW-S-PI-5_P21	25/05/2026	Very good	4	2-10%	30-70%	Weeds increasing at site, but otherwise healthy. Pic 6960 BORR area weed free.
BW-S-PI-5_P22	20/11/2019	Excellent		<2%		

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P22	22/05/2020	Excellent		<2%	30-70%	Jarrah drought effects,
BW-S-PI-5_P22	23/10/2020	Excellent	4	<2%	30-70%	Jarrah drought effects,
BW-S-PI-5_P22	14/10/2021	Excellent	4	<2%	30-70%	
BW-S-PI-5_P22	25/05/2022	Excellent	4	<2%	30-70%	Banksia crowns look healthy. Jarrah stressed ,
BW-S-PI-5_P22	20/10/2022	Excellent	4	<2%	30-70%	Banksia crowns look healthy. Jarrah stressed ,
BW-S-PI-5_P22	25/05/2023	Excellent	4	<2%	30-70%	Banksia crowns look healthy. Small Jarrah saplings stressed ,
BW-S-PI-5_P22	29/09/2023	Excellent	4	<2%	30-70%	Banksia crowns look healthy. Small Jarrah saplings stressed, large jarrah almost dead.,
BW-S-PI-5_P22	24/05/2024	Excellent	4	<2%	30-70%	Banksia crowns look healthy. Small Jarrah saplings stressed, large jarrah almost dead. 2024 per 2023,
BW-S-PI-5_P22	15/11/2024	Excellent	4	<2%	30-70%	Banksia crowns look healthy. Small Jarrah saplings stressed, large jarrah almost dead. 2024 per 2023. 24Sp site still 4. Large Em with some epicormic growth. Hh a 3.,
BW-S-PI-5_P22	23/05/2025	Excellent	4	<2%	30-70%	Banksia crowns look healthy. Small Jarrah saplings stressed, large jarrah almost dead. 2024 per 2023. 24Sp site still 4. Large Em with some epicormic growth. Hh a 3.,Site is healthy over all
BW-S-PI-5_P22	30/09/2025	Excellent	4	<2%	30-70%	Relictual stress evident in Hh, but ok no decline
BW-S-PI-5_P22	25/05/2026	Excellent	4	<2%	30-70%	Site ok, relictual stress in Hh evident. Large Em still very stressed. Pic 7959.
BW-S-PI-5_P23	20/11/2019	Excellent		<2%		
BW-S-PI-5_P23	22/05/2020	Excellent		<2%	30-70%	Jarrah drought effects,
BW-S-PI-5_P23	23/10/2020	Excellent	4	<2%	30-70%	Jarrah drought effects,
BW-S-PI-5_P23	14/10/2021	Excellent	4	<2%	30-70%	
BW-S-PI-5_P23	25/05/2022	Excellent	4	<2%	30-70%	
BW-S-PI-5_P23	20/10/2022	Excellent	4	<2%	30-70%	
BW-S-PI-5_P23	25/05/2023	Excellent	4	<2%	30-70%	
BW-S-PI-5_P23	29/09/2023	Excellent	4	<2%	30-70%	Site is healthy ,
BW-S-PI-5_P23	24/05/2024	Excellent	4	<2%	30-70%	Site is healthy, 1-2 stressed kunzea in background, lots Hh stressed / dead pic 186,
BW-S-PI-5_P23	15/11/2024	Excellent	4	<2%	30-70%	Site is healthy, 1-2 stressed kunzea in background, lots Hh stressed / dead pic 186. 24 Sp overall site shrubs trees 4, but Ba thin. Hh with Relictual drought stress, 4,
BW-S-PI-5_P23	23/05/2025	Excellent	4	<2%	30-70%	Site is healthy, 1-2 stressed kunzea in background, lots Hh stressed / dead pic 186. 24 Sp overall site shrubs trees 4, but Ba thin. Hh with Relictual drought stress, 4,Hh about 60 % cover. Some Styphelia dead.
BW-S-PI-5_P23	30/09/2025	Excellent	4	2-10%	30-70%	Pic 5475, hh is recovering, but plants still showing signs of drought.

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P23	25/05/2026	Excellent	4	<2%	30-70%	Site is stable. Hh still recovering, with evidence of stress from previous drought. Site close to BORR pic 7947
BW-S-PI-5_P24	20/11/2019	Excellent		<2%		
BW-S-PI-5_P24	22/05/2020	Excellent		<2%	30-70%	
BW-S-PI-5_P24	23/10/2020	Excellent	4	<2%	30-70%	
BW-S-PI-5_P24	14/10/2021	Excellent	4	<2%	30-70%	
BW-S-PI-5_P24	25/05/2022	Excellent	4	<2%	30-70%	Canopies of large marri and jarrah trees are thin,
BW-S-PI-5_P24	20/10/2022	Excellent	4	<2%	30-70%	Canopies of large marri and jarrah trees are thin,
BW-S-PI-5_P24	25/05/2023	Excellent	4	<2%	30-70%	Canopies of large marri and jarrah trees are thin,
BW-S-PI-5_P24	29/09/2023	Excellent	4	<2%	30-70%	Canopies of large marri and jarrah trees are thin,
BW-S-PI-5_P24	24/05/2024	Excellent	4	<2%	30-70%	Canopies of large marri and jarrah trees are thin. 2024 site is ok but Hh still stressed.,
BW-S-PI-5_P24	15/11/2024	Excellent	4	<2%	30-70%	Canopies of large marri and jarrah trees are thin. 2024 site is ok but Hh still stressed. 24Sp site healthy.,
BW-S-PI-5_P24	23/05/2025	Excellent	4	<2%	30-70%	Canopies of large marri and jarrah trees are thin. 2024 site is ok but Hh still stressed. 24Sp site healthy.,Site ok
BW-S-PI-5_P24	30/09/2025	Excellent	4	<2%	30-70%	Banksia tree pushed into bush off track, else site stable.
BW-S-PI-5_P24	25/05/2026	Excellent	4	<2%	30-70%	Site appears healthy. Hh has evidence of relictual stress.
BW-S-PI-5_P25	20/11/2019	Excellent		<2%		
BW-S-PI-5_P25	22/05/2020	Excellent		<2%	30-70%	Was incorrectly labeled P21,
BW-S-PI-5_P25	23/10/2020	Excellent	3	<2%	30-70%	Was incorrectly labeled P21,
BW-S-PI-5_P25	14/10/2021	Excellent	3	<2%	30-70%	
BW-S-PI-5_P25	25/05/2022	Excellent	3	<2%	30-70%	Jarrah trees very stressed with thinning crowns ,
BW-S-PI-5_P25	20/10/2022	Excellent	4	<2%	30-70%	Jarrah trees have improved in condition. ,
BW-S-PI-5_P25	25/05/2023	Excellent	4	<2%	30-70%	Jarrah trees have improved in condition. ,
BW-S-PI-5_P25	29/09/2023	Excellent	4	2-10%	30-70%	Jarrah and Banksia trees are stressed. May go down to 3.,
BW-S-PI-5_P25	24/05/2024	Excellent	4	2-10%	30-70%	Jarrah and Banksia trees are stressed. May go down to 3. Two banksia dead, but jarrah ok. Rest of site ok,
BW-S-PI-5_P25	15/11/2024	Excellent	4	2-10%	30-70%	Jarrah and Banksia trees are stressed. May go down to 3. Two banksia dead, but jarrah ok. Rest of site ok. 24Sp site recovered well after drought. Pic 2920,
BW-S-PI-5_P25	23/05/2025	Excellent	4	2-10%	30-70%	Jarrah and Banksia trees are stressed. May go down to 3. Two banksia dead, but jarrah ok. Rest of site ok. 24Sp site recovered well after drought. Pic 2920,Site is ok
BW-S-PI-5_P25	30/09/2025	Excellent	4	2-10%	30-70%	Site healthy
BW-S-PI-5_P25	25/05/2026	Excellent	4	<2%	30-70%	Site healthy
BW-S-PI-5_P26	20/11/2019	Excellent		<2%		

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P26	22/05/2020	Excellent		<2%	30-70%	Possible storm damage in past: Incorrectly labeled P22,
BW-S-PI-5_P26	23/10/2020	Excellent	3	2-10%	30-70%	Possible storm damage in past: Incorrectly labeled P22,
BW-S-PI-5_P26	14/10/2021	Excellent	3	2-10%	30-70%	
BW-S-PI-5_P26	25/05/2022	Excellent	4	2-10%	30-70%	Tree crowns look healthy, some older Banksia dead and have lost all their leaves. Increased rating based on overall quality of tree health. ,
BW-S-PI-5_P26	20/10/2022	Excellent	4	2-10%	30-70%	Tree crowns look healthy, some older Banksia dead and have lost all their leaves. Increased rating based on overall quality of tree health. ,
BW-S-PI-5_P26	25/05/2023	Excellent	4	2-10%	30-70%	Tree crowns look healthy, some older Banksia dead and have lost all their leaves. Increased rating based on overall quality of tree health. Trees still at 4 rating,
BW-S-PI-5_P26	29/09/2023	Excellent	4	10-30%	30-70%	Tree crowns look healthy, some older Banksia dead and have lost all their leaves. Increased rating based on overall quality of tree health. Trees still at 4 rating,
BW-S-PI-5_P26	24/05/2024	Excellent	4	10-30%	30-70%	Tree crowns look healthy, some older Banksia dead and have lost all their leaves. Increased rating based on overall quality of tree health. Trees still at 4 rating. 2024 per 23 assessment. Site relatively healthy.,
BW-S-PI-5_P26	15/11/2024	Excellent	4	10-30%	30-70%	Tree crowns look healthy, some older Banksia dead and have lost all their leaves. Increased rating based on overall quality of tree health. Trees still at 4 rating. 2024 per 23 assessment. Site relatively healthy. 24Sp site healthy, overall low stress.,
BW-S-PI-5_P26	23/05/2025	Excellent	4	10-30%	30-70%	Tree crowns look healthy, some older Banksia dead and have lost all their leaves. Increased rating based on overall quality of tree health. Trees still at 4 rating. 2024 per 23 assessment. Site relatively healthy. 24Sp site healthy, overall low stress.,Per 24Sp.
BW-S-PI-5_P26	30/09/2025	Excellent	4	10-30%	30-70%	Site stable
BW-S-PI-5_P26	25/05/2026	Excellent	4	2-10%	30-70%	Site stable, weed cover has reduced, perhaps due to absence of rain.
BW-S-PI-5_P27	20/11/2019	Excellent		<2%		Possible storm damage in past,
BW-S-PI-5_P27	22/05/2020	Excellent		<2%	30-70%	Incorrectly labeled OP23,
BW-S-PI-5_P27	23/10/2020	Excellent	3	2-10%	30-70%	Incorrectly labeled OP23,
BW-S-PI-5_P27	14/10/2021	Excellent	3	2-10%	30-70%	
BW-S-PI-5_P27	25/05/2022	Excellent	3	2-10%	30-70%	Note large marri jarrah tree crowns are very thin hence 3 rating.,
BW-S-PI-5_P27	20/10/2022	Excellent	3	2-10%	30-70%	Note large marri jarrah tree crowns are very thin hence 3 rating.,
BW-S-PI-5_P27	25/05/2023	Excellent	3	2-10%	30-70%	Note large marri jarrah tree crowns are very thin hence 3 rating.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P27	29/09/2023	Excellent	3	2-10%	30-70%	Note large marri jarrah tree crowns are very thin hence 3 rating.,
BW-S-PI-5_P27	24/05/2024	Excellent	3	2-10%	30-70%	Note large marri jarrah tree crowns are very thin hence 3 rating. Some scattered b grandis saplings and kunzea glabrescens dead in background due to drought. Other Banksia ok pic 185. Hh stressed ,
BW-S-PI-5_P27	15/11/2024	Excellent	4	2-10%	30-70%	Hh stressed. 24Sp site has recovered. Relictual stress in Hh and Pc. Lots of fallen banksia.,
BW-S-PI-5_P27	23/05/2025	Excellent	4	2-10%	30-70%	Hh stressed. 24Sp site has recovered. Relictual stress in Hh and Pc. Lots of fallen banksia.,Per 24Sp
BW-S-PI-5_P27	30/09/2025	Excellent	4	2-10%	30-70%	Phlebocarya recovering with new growth evident. Pic 5471
BW-S-PI-5_P27	25/05/2026	Excellent	4	2-10%	30-70%	Site is stable. Phlebocarya recovering.
BW-S-PI-5_P28	20/11/2019	Excellent		<2%		
BW-S-PI-5_P28	25/06/2020	Excellent		<2%		
BW-S-PI-5_P28	09/09/2020	Excellent		<2%		
BW-S-PI-5_P28	14/10/2021	Excellent	4	<2%	30-70%	No data was present for this point. Point was established. Point does not align with photo mon Point for old photocode number,
BW-S-PI-5_P28	25/05/2022	Excellent	4	<2%	30-70%	No data was present for this point. Point was established. Point does not align with photo mon Point for old photocode number, Photomon no 26a. Banksia canopies look healthy. Other tree crowns are thinning. ,
BW-S-PI-5_P28	20/10/2022	Excellent	4	<2%	30-70%	No data was present for this point. Point was established. Point does not align with photo mon Point for old photocode number, Photomon no 26a. Banksia canopies look healthy. Other tree crowns are thinning. ,
BW-S-PI-5_P28	25/05/2023	Excellent	4	<2%	30-70%	Banksia healthy. Marri showing continued stress, hence 4 rating.,
BW-S-PI-5_P28	29/09/2023	Excellent	4	<2%	30-70%	Banksia healthy. Marri showing continued stress, hence 4 rating. Weeds are increasing mostly bmax,
BW-S-PI-5_P28	24/05/2024	Excellent	4	<2%	30-70%	Banksia healthy. Marri showing continued stress, hence 4 rating. Weeds are increasing mostly bmax. Site relatively healthy. One dead banksia grandis sapling. Due to drought.,
BW-S-PI-5_P28	15/11/2024	Excellent	4	<2%	30-70%	Banksia healthy. Marri showing continued stress, hence 4 rating. Weeds are increasing mostly bmax. Site relatively healthy. One dead banksia grandis sapling. Due to drought. 24Sp Site is healthy most veg recovered.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P28	23/05/2025	Excellent	4	<2%	30-70%	Banksia healthy. Marri showing continued stress, hence 4 rating. Weeds are increasing mostly bmax. Site relatively healthy. One dead banksia grandis sapling. Due to drought. 24Sp Site is healthy most veg recovered.,Site is per Sp24, but weeds are increasing especially freesia. So now Bg
BW-S-PI-5_P28	30/09/2025	Excellent	4	<2%	30-70%	Per SpA25
BW-S-PI-5_P28	25/05/2026	Very good	4	2-10%	30-70%	Freesia and oxalis pes-caprae increasing. Native health stable.
BW-S-PI-5_P29	20/11/2019	Excellent		<2%		
BW-S-PI-5_P29	22/05/2020	Excellent		<2%	30-70%	Note recent death of Banksia attenuata due to die back,
BW-S-PI-5_P29	23/10/2020	Excellent	4	<2%	30-70%	Note recent death of two Banksia attenuata due to die back,
BW-S-PI-5_P29	14/10/2021	Excellent	4	<2%	30-70%	
BW-S-PI-5_P29	25/05/2022	Excellent	4	<2%	30-70%	Canopies of large trees are thin,
BW-S-PI-5_P29	20/10/2022	Excellent	4	<2%	30-70%	Canopies of large trees are thin, recent death of Banksia sapling may indicate active pc front. Xanthorrhoea brunonis fronds yellowing. ,
BW-S-PI-5_P29	25/05/2023	Excellent	4	<2%	30-70%	Canopies of large trees are thin, recent death of Banksia sapling may indicate active pc front. Xanthorrhoea brunonis fronds yellowing. Xanthorrhoea still alive, ,
BW-S-PI-5_P29	29/09/2023	Excellent	4	<2%	30-70%	Canopies of large trees are thin, recent death of Banksia sapling may indicate active pc front. Xanthorrhoea brunonis fronds yellowing. Xanthorrhoea still alive, / healthy ,
BW-S-PI-5_P29	24/05/2024	Excellent	4	<2%	30-70%	Canopies of large trees are thin, recent death of Banksia sapling may indicate active pc front. 2024 Xb ok. Further death of some scattered Banksia grandis saplings in and near site. Jarrah tree dead due to wood borer. hh stressed but site looks ok.,
BW-S-PI-5_P29	15/11/2024	Excellent	4	<2%	30-70%	24Sp site overall 4. Relictual stress with dead foliage in Hh and Pc. ,
BW-S-PI-5_P29	23/05/2025	Excellent	4	<2%	30-70%	24Sp site overall 4. Relictual stress with dead foliage in Hh and Pc. ,Per 24Sp
BW-S-PI-5_P29	30/09/2025	Excellent	4	<2%	30-70%	Relictual impacts still evident in phc. But no further decline.
BW-S-PI-5_P29	25/05/2026	Excellent	4	<2%	>70%	No further decline
BW-S-PI-5_P30	20/11/2019	Very good		<2%		
BW-S-PI-5_P30	22/05/2020	Very good		<2%	30-70%	
BW-S-PI-5_P30	23/10/2020	Very good	4	<2%	30-70%	
BW-S-PI-5_P30	14/10/2021	Very good	4	<2%	30-70%	
BW-S-PI-5_P30	25/05/2022	Very good	4	<2%	30-70%	Dead Banksia trees have fallen. ,
BW-S-PI-5_P30	20/10/2022	Very good	4	<2%	30-70%	Dead Banksia trees have fallen. ,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P30	25/05/2023	Very good	4	<2%	30-70%	Dead Banksia trees have fallen. Dieback does not appear to be very active, no recent death.,
BW-S-PI-5_P30	29/09/2023	Very good	4	2-10%	30-70%	Dead Banksia trees have fallen. Dieback does not appear to be very active, no recent death. Weeds have increased near track ,
BW-S-PI-5_P30	24/05/2024	Very good	4	2-10%	30-70%	Dead Banksia trees have fallen. Dieback does not appear to be very active, no recent death. Weeds have increased near track. Dead Persoonia longifolia in background. All Hh very stressed. ,
BW-S-PI-5_P30	15/11/2024	Very good	4	2-10%	30-70%	Dead Banksia trees have fallen. Dieback does not appear to be very active, no recent death. Weeds have increased near track. Dead Persoonia longifolia in background. All Hh very stressed. 24Sp existing trees ok, recovering from drought ,
BW-S-PI-5_P30	23/05/2025	Very good	4	2-10%	30-70%	Dead Banksia trees have fallen. Dieback does not appear to be very active, no recent death. Weeds have increased near track. Dead Persoonia longifolia in background. All Hh very stressed. 24Sp existing trees ok, recovering from drought ,Tree canopy ok, Hh stressed. Other forbs stressed,
BW-S-PI-5_P30	30/09/2025	Very good	4	2-10%	30-70%	Site appears stable, Hh appears ok.
BW-S-PI-5_P30	25/05/2026	Very good	4	2-10%	30-70%	Site stable.
BW-S-PI-5_P31	20/11/2019	Very good		2-10%		
BW-S-PI-5_P31	22/05/2020	Very good		<2%	30-70%	Weeds not evident at this time,
BW-S-PI-5_P31	23/10/2020	Very good	4	<2%	30-70%	Weeds not evident at this time,
BW-S-PI-5_P31	14/10/2021	Very good	4	<2%	30-70%	
BW-S-PI-5_P31	25/05/2022	Very good	4	<2%	30-70%	
BW-S-PI-5_P31	20/10/2022	Very good	4	<2%	30-70%	
BW-S-PI-5_P31	25/05/2023	Very good	4	<2%	30-70%	
BW-S-PI-5_P31	29/09/2023	Very good	4	2-10%	30-70%	Weed cover increased ,
BW-S-PI-5_P31	24/05/2024	Very good	4	2-10%	30-70%	Weed cover increased, no annual weeds, too dry. Some occasional scattered dead jarrah saplings due to wood borer. Pic 184,
BW-S-PI-5_P31	15/11/2024	Very good	4	2-10%	30-70%	Weed cover increased, no annual weeds, too dry. Some occasional scattered dead jarrah saplings due to wood borer. Pic 184. 24 sp trees 4 . Hh, Pc 3 recovering from drought.,
BW-S-PI-5_P31	23/05/2025	Very good	4	2-10%	30-70%	Weed cover increased, no annual weeds, too dry. Some occasional scattered dead jarrah saplings due to wood borer. Pic 184. 24 sp trees 4 . Hh, Pc 3 recovering from drought.,Hh approximately 60%. Phlebocarya also stressed.
BW-S-PI-5_P31	30/09/2025	Very good	4	2-10%	30-70%	Hh 60% of shrub dead. Phc 60 % dead

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P31	25/05/2026	Very good	4	2-10%	30-70%	Site stable per s2025
BW-S-PI-5_P32	20/11/2019	Very good		2-10%		
BW-S-PI-5_P32	22/05/2020	Very good		<2%	30-70%	Access issues previously reported have passed,
BW-S-PI-5_P32	23/10/2020	Very good	4	2-10%	30-70%	Access issues previously reported have passed,
BW-S-PI-5_P32	14/10/2021	Very good	4	2-10%	30-70%	
BW-S-PI-5_P32	25/05/2022	Very good	4	2-10%	30-70%	Tree crowns look healthy. Old trees have died and what remains is good ,
BW-S-PI-5_P32	20/10/2022	Very good	4	2-10%	30-70%	Tree crowns look healthy. Old trees have died and what remains is good ,
BW-S-PI-5_P32	25/05/2023	Very good	4	2-10%	30-70%	Tree crowns look healthy. Old trees have died and what remains is good ,
BW-S-PI-5_P32	29/09/2023	Very good	4	2-10%	30-70%	Tree crowns look healthy. Old trees have died and what remains is good ,
BW-S-PI-5_P32	24/05/2024	Very good	4	2-10%	30-70%	Tree crowns look healthy. Old trees have died and what remains is good. Some scattered jarrah saplings and Banksia grandis dead, jarrah affected by wood borer pic 183. Hh stressed.,
BW-S-PI-5_P32	15/11/2024	Very good	4	2-10%	30-70%	24Sp Hh recovering but about 3 stress. Phlebocarya ciliata also stressed. Trees 4.,
BW-S-PI-5_P32	23/05/2025	Very good	4	2-10%	30-70%	24Sp Hh recovering but about 3 stress. Phlebocarya ciliata also stressed. Trees 4.,Per 24Sp.
BW-S-PI-5_P32	30/09/2025	Very good	4	2-10%	30-70%	Site disturbed with removal of tree across track, may cause future weed colonisation. Pic 5470
BW-S-PI-5_P32	25/05/2026	Very good	4	2-10%	30-70%	Site stable.
BW-S-PI-5_P33	20/11/2019	Very good		2-10%		
BW-S-PI-5_P33	22/05/2020	Very good		<2%	30-70%	Autumn view presents less weeds,
BW-S-PI-5_P33	23/10/2020	Very good	3	2-10%	30-70%	Autumn view presents less weeds,
BW-S-PI-5_P33	14/10/2021	Very good	3	2-10%	30-70%	
BW-S-PI-5_P33	25/05/2022	Very good	3	2-10%	30-70%	
BW-S-PI-5_P33	20/10/2022	Very good	3	2-10%	30-70%	
BW-S-PI-5_P33	25/05/2023	Very good	3	2-10%	30-70%	
BW-S-PI-5_P33	29/09/2023	Very good	3	2-10%	30-70%	Trees don't look stressed, but foliage missing on old stressed trees.,
BW-S-PI-5_P33	24/05/2024	Very good	3	2-10%	30-70%	Some scattered dead jarrah saplings young trees in background. Pic 181 most Hibbertia hypercoides is very stressed almost dead pic 182,
BW-S-PI-5_P33	15/11/2024	Very good	3	2-10%	30-70%	Some scattered dead jarrah saplings young trees in background. Pic 181 most Hibbertia hypercoides is very stressed almost dead pic 182. 24Sp Em saplings dead from cockies and drought. Hh is about 60% dead, Phlebocarya ciliata also dead. Pic 2917.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P33	23/05/2025	Very good	3	2-10%	30-70%	Some scattered dead jarrah saplings young trees in background. Pic 181 most Hibbertia hypercoides is very stressed almost dead pic 182. 24Sp Em saplings dead from cockies and drought. Hh is about 60% dead, Phlebocarya ciliata also dead. Pic 2917.,Hh about 60%, Sty rac also dead. Stressed jarrah
BW-S-PI-5_P33	30/09/2025	Very good	3	2-10%	30-70%	Pic5469, Hh and Pcil 40% dead, some signs of recovery in other plants.
BW-S-PI-5_P33	25/05/2026	Very good	3	2-10%	30-70%	Hh and Pcil 40% dead, pic 7946 afreesia bulbs evident.
BW-S-PI-5_P34	20/11/2019	Very good		2-10%		
BW-S-PI-5_P34	22/05/2020	Excellent		<2%	30-70%	
BW-S-PI-5_P34	23/10/2020	Excellent	3	<2%	30-70%	
BW-S-PI-5_P34	14/10/2021	Excellent	3	<2%	30-70%	
BW-S-PI-5_P34	25/05/2022	Excellent	4	<2%	30-70%	Tree crowns look healthy , increased health from 3 to 5,
BW-S-PI-5_P34	20/10/2022	Excellent	5	<2%	30-70%	Tree crowns look healthy , increased health from 3 to 5, Briza maxima is increasing in the area west of monitoring area. Substantial increases in the monitoring area will result in a lowering of veg condition. ,
BW-S-PI-5_P34	25/05/2023	Excellent	5	<2%	30-70%	Tree crowns look healthy , increased health from 3 to 5, Briza maxima is increasing in the area west of monitoring area. Substantial increases in the monitoring area will result in a lowering of veg condition. ,
BW-S-PI-5_P34	29/09/2023	Excellent	5	<2%	30-70%	Tree crowns look healthy , increased health from 3 to 5, Briza maxima is increasing in the area west of monitoring area. Substantial increases in the monitoring area will result in a lowering of veg condition. Weeds stable.,
BW-S-PI-5_P34	24/05/2024	Excellent	4	<2%	30-70%	Some scattered dead very stressed banksia and jarrah trees in background.,
BW-S-PI-5_P34	15/11/2024	Excellent	4	<2%	30-70%	Some scattered dead very stressed banksia and jarrah trees in background. 24Sp site stress low has recovered well. AUTmn stressed Hh is recovering but thin with dead branches. Pic 2916, 2917. No,
BW-S-PI-5_P34	23/05/2025	Excellent	4	<2%	30-70%	Some scattered dead very stressed banksia and jarrah trees in background. 24Sp site stress low has recovered well. AUTmn stressed Hh is recovering but thin with dead branches. Pic 2916, 2917. No,Styphelia rac dead, Hh about 60%. Canopy ok.

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-5_P34	30/09/2025	Excellent	4	2-10%	30-70%	Site has remained stable since drought impact, no further decline. Freesia new at site
BW-S-PI-5_P34	25/05/2026	Excellent	4	2-10%	30-70%	A26. Sty rac absent, Hh ok relictual stress evident.
BW-S-PI-5_T1N	20/11/2019	Very good				
BW-S-PI-5_T1N	22/05/2020	Very good		<2%	30-70%	
BW-S-PI-5_T1N	14/10/2020	Very good	3	30-70%	30-70%	
BW-S-PI-5_T1N	14/10/2021	Very good	4	10-30%	30-70%	
BW-S-PI-5_T1N	25/05/2022	Very good	4	10-30%	30-70%	
BW-S-PI-5_T1N	17/10/2022	Very good	5	10-30%	30-70%	
BW-S-PI-5_T1N	26/05/2023	Very good	5	10-30%	30-70%	
BW-S-PI-5_T1N	13/10/2023	Very good	5	10-30%	30-70%	
BW-S-PI-5_T1N	24/05/2024	Very good	5	10-30%	30-70%	
BW-S-PI-5_T1N	10/11/2024	Very good	5	10-30%	30-70%	
BW-S-PI-5_T1N	23/05/2025	Very good	4	10-30%	30-70%	,Canopy is now 4 with stress in Cc and Em. Understory similar to 24 sp.
BW-S-PI-5_T1S	20/11/2019	Very good				
BW-S-PI-5_T1S	22/05/2020	Excellent		<2%	30-70%	
BW-S-PI-5_T1S	14/10/2020	Excellent	4	<2%	30-70%	
BW-S-PI-5_T1S	14/10/2021	Excellent	4	<2%	30-70%	
BW-S-PI-5_T1S	25/05/2022	Excellent	4	<2%	30-70%	
BW-S-PI-5_T1S	17/10/2022	Excellent	4	<2%	30-70%	
BW-S-PI-5_T1S	26/05/2023	Excellent	4	<2%	30-70%	
BW-S-PI-5_T1S	13/10/2023	Excellent	4	<2%	30-70%	
BW-S-PI-5_T1S	24/05/2024	Excellent	4	<2%	30-70%	
BW-S-PI-5_T1S	10/11/2024	Excellent	4	10-30%	30-70%	
BW-S-PI-5_T1S	23/05/2025	Excellent	4	10-30%	30-70%	,Hh 3, Pc 3. Weed cover has to increased so the site is only marginally excellent.
BW-S-PI-6_P01	22/05/2020	Degraded		>70%	30-70%	
BW-S-PI-6_P01	23/10/2020	Degraded	4	>70%	30-70%	
BW-S-PI-6_P01	15/10/2021	Degraded	4	>70%	30-70%	
BW-S-PI-6_P01	25/05/2022	Degraded	4	>70%	30-70%	
BW-S-PI-6_P01	17/10/2022	Degraded	4	>70%	30-70%	
BW-S-PI-6_P01	26/05/2023	Degraded	4	>70%	30-70%	
BW-S-PI-6_P01	29/09/2023	Degraded	4	>70%	30-70%	
BW-S-PI-6_P01	24/05/2024	Degraded	4	>70%	30-70%	Large jarrah in background almost dead.,
BW-S-PI-6_P01	07/11/2024	Degraded	4	>70%	30-70%	Large jarrah in background almost dead. 2024 sp stable no change ,
BW-S-PI-6_P01	23/05/2025	Degraded	4	>70%	30-70%	Large jarrah in background almost dead. 2024 sp stable no change ,A24 site stable.
BW-S-PI-6_P01	30/09/2025	Degraded	4	>70%	30-70%	Acacia pycnantha showing signs of stress. Else stable.
BW-S-PI-6_P01	25/05/2026	Degraded	4	>70%	30-70%	A 26 per S 25
BW-S-PI-6_P02	22/05/2020	Degraded		10-30%	30-70%	
BW-S-PI-6_P02	23/10/2020	Degraded	4	10-30%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-6_P02	15/10/2021	Degraded	4	10-30%	30-70%	
BW-S-PI-6_P02	25/05/2022	Degraded	4	10-30%	30-70%	
BW-S-PI-6_P02	17/10/2022	Degraded	5	30-70%	30-70%	Weeds increasing significantly ,
BW-S-PI-6_P02	26/05/2023	Degraded	5	>70%	30-70%	Weeds increasing significantly ,
BW-S-PI-6_P02	29/09/2023	Degraded	5	>70%	30-70%	Weeds increasing significantly, dead banksia branches falling ,
BW-S-PI-6_P02	24/05/2024	Degraded	5	>70%	30-70%	Weeds increasing significantly, dead banksia branches falling, stressed jarrah in background. All other trees healthy.,
BW-S-PI-6_P02	07/11/2024	Degraded	5	>70%	30-70%	Weeds increasing significantly, dead banksia branches falling, stressed jarrah in background. All other trees healthy. 2024sp no change ,
BW-S-PI-6_P02	23/05/2025	Degraded	5	>70%	30-70%	Weeds increasing significantly, dead banksia branches falling, stressed jarrah in background. All other trees healthy. 2024sp no change ,A25 stable no change.
BW-S-PI-6_P02	30/09/2025	Degraded	5	>70%	30-70%	Cc and Ba in background is thin, but trees in assessment area still 5
BW-S-PI-6_P02	25/05/2026	Degraded	5	>70%	30-70%	Site stable.
BW-S-PI-6_P03	22/05/2020	Degraded		30-70%	30-70%	
BW-S-PI-6_P03	23/10/2020	Degraded	5	30-70%	30-70%	
BW-S-PI-6_P03	15/10/2021	Degraded	5	30-70%	30-70%	
BW-S-PI-6_P03	25/05/2022	Degraded	5	30-70%	30-70%	
BW-S-PI-6_P03	17/10/2022	Degraded	5	30-70%	30-70%	
BW-S-PI-6_P03	26/05/2023	Degraded	5	>70%	30-70%	Almost all weeds in understory ,
BW-S-PI-6_P03	29/09/2023	Degraded	5	>70%	30-70%	Almost all weeds in understory ,
BW-S-PI-6_P03	24/05/2024	Degraded	5	>70%	30-70%	Almost all weeds in understory , 2024 old banksia has large dead branch, one jarrah sapling recently dead, othe Canopy healthy .,
BW-S-PI-6_P03	07/11/2024	Degraded	5	>70%	30-70%	Almost all weeds in understory , 2024 old banksia has large dead branch, one jarrah sapling recently dead, othe Canopy healthy . 3024 sp no change. stable ,
BW-S-PI-6_P03	23/05/2025	Degraded	4	>70%	30-70%	Almost all weeds in understory , 2024 old banksia has large dead branch, one jarrah sapling recently dead, othe Canopy healthy . 3024 sp no change. stable ,A25 canopy has thinned especially in cc
BW-S-PI-6_P03	30/09/2025	Degraded	4	>70%	30-70%	No change since A25
BW-S-PI-6_P03	25/05/2026	Degraded	4	>70%	30-70%	A26 site is stable.
BW-S-PI-6_P04	22/05/2020	Degraded		30-70%	30-70%	Marri drought effects,
BW-S-PI-6_P04	23/10/2020	Degraded	4	30-70%	30-70%	Marri drought effects,
BW-S-PI-6_P04	15/10/2021	Degraded	4	30-70%	30-70%	
BW-S-PI-6_P04	25/05/2022	Degraded	4	30-70%	30-70%	
BW-S-PI-6_P04	17/10/2022	Degraded	5	30-70%	30-70%	
BW-S-PI-6_P04	26/05/2023	Degraded	5	>70%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-6_P04	29/09/2023	Degraded	5	>70%	30-70%	
BW-S-PI-6_P04	24/05/2024	Degraded	5	>70%	30-70%	Site is stable,
BW-S-PI-6_P04	07/11/2024	Degraded	5	>70%	30-70%	Site is stable. 2024 sp no change ,
BW-S-PI-6_P04	23/05/2025	Degraded	5	>70%	30-70%	Site is stable. 2024 sp no change ,A25 site is stable.
BW-S-PI-6_P04	30/09/2025	Degraded	5	>70%	30-70%	No change.
BW-S-PI-6_P04	25/05/2026	Degraded	4	>70%	30-70%	Large branch has fallen from a Ba. Large Marri in nw corner is stressed at a 3 level.
BW-S-PI-8_P01	20/06/2022	Very good	5	2-10%	30-70%	
BW-S-PI-8_P01	20/10/2022	Very good	4	2-10%	30-70%	Large marri and jarrah trees are stressed ,
BW-S-PI-8_P01	26/05/2023	Very good	4	2-10%	30-70%	Large marri and jarrah trees are stressed , still stressed. Cleared within 10m of site.,
BW-S-PI-8_P01	29/09/2023	Very good	4	2-10%	30-70%	Large marri and jarrah trees are stressed , still stressed. Cleared within 10m of site. P2518 stressed jarrah and marri trees. P2519 cleared edge weed free. ,
BW-S-PI-8_P01	25/05/2024	Very good	4	2-10%	30-70%	Large marri and jarrah trees are stressed , still stressed. Cleared within 10m of site. P2518 stressed jarrah and marri trees. P2519 cleared edge weed free. 2024 per 2023. Close to works. Pic 195,
BW-S-PI-8_P01	14/11/2024	Very good	4	2-10%	30-70%	Pic 195. 24Sp site per previous assessment, but Ba in east of site at risk due to excavation for wall, pic 2808. ,
BW-S-PI-8_P01	23/05/2025	Very good	4	2-10%	30-70%	Pic 195. 24Sp site per previous assessment, but Ba in east of site at risk due to excavation for wall, pic 2808. ,
BW-S-PI-8_P01	30/09/2025	Very good	4	2-10%	30-70%	Vegetation is stable, does not appear stressed. Perennial valet grass is increasing. Trees adjacent to wall are stable pic5477.
BW-S-PI-8_P01	25/05/2026	Very good	4	10-30%	30-70%	Vegetation appears healthy. Trees adjacent the wall are healthy. Veldt is increasing.pic 7965, 7966.
BW-S-PI-8_P02	20/06/2022	Excellent	5	<2%	>70%	
BW-S-PI-8_P02	20/10/2022	Excellent	5	<2%	>70%	
BW-S-PI-8_P02	26/05/2023	Excellent	5	<2%	>70%	Site looks healthy ,
BW-S-PI-8_P02	29/09/2023	Excellent	5	<2%	>70%	Site looks healthy / one jarrah sapling about 3m from cleared edge is almost dead P2520. All other trees healthy. P3086,
BW-S-PI-8_P02	25/05/2024	Excellent	4	<2%	>70%	Site looks healthy / one jarrah sapling about 3m from cleared edge is almost dead P2520. All other trees healthy. P3086. 2024 jarrah dead. Large Banksia attenuata dead, with another in background dead due to drought. Hh stressed- ,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-8_P02	14/11/2024	Excellent	4	<2%	>70%	24 Sp veg healthy. Ba saplings healthy. Af not common here, most stressed trees. Hh healthy but showing old signs of drought stress. Pic 2907.,
BW-S-PI-8_P02	23/05/2025	Excellent	4	<2%	>70%	24 Sp veg healthy. Ba saplings healthy. Af not common here, most stressed trees. Hh healthy but showing old signs of drought stress. Pic 2907.,
BW-S-PI-8_P02	30/09/2025	Excellent	4	<2%	>70%	Site is stable and healthy. One small jarrah to east recently? Dead pic 5478, but else healthy. 5479.
BW-S-PI-8_P02	25/05/2026	Excellent	4	<2%	>70%	Site appears stable and healthy. Jarrah tree has not recovered. Surrounding trees fine. pic 7967
BW-S-PI-8_P03	20/06/2022	Good	5	10-30%	30-70%	Site has been disturbed, towards road edge it is good, but condition improves away from road,
BW-S-PI-8_P03	20/10/2022	Good	5	10-30%	30-70%	Site has been disturbed, towards road edge it is good, but condition improves away from referral area.,
BW-S-PI-8_P03	26/05/2023	Good	5	10-30%	30-70%	Site has been disturbed, towards road edge it is good, but condition improves towards the project area.,
BW-S-PI-8_P03	13/10/2023	Good	5	10-30%	30-70%	Site has been disturbed, towards road edge it is good, but condition improves towards the project area./ site stable,
BW-S-PI-8_P03	25/05/2024	Good	4	10-30%	30-70%	Site has been disturbed, towards road edge it is good, but condition improves towards the project area./ site stable. 2024 annual weeds absent. Large agonis, and Ba dead in site. Scattered Agonis in background also dead due to drought. Pic 196.,
BW-S-PI-8_P03	14/11/2024	Good	4	10-30%	30-70%	24Sp scattered Af not dead, stressed 2-3 with epi growth pic 2905. Unstory healthy 5. Veg adj BOrr healthy. Pic 2906.,
BW-S-PI-8_P03	23/05/2025	Good	4	10-30%	30-70%	24Sp scattered Af not dead, stressed 2-3 with epi growth pic 2905. Unstory healthy 5. Veg adj BOrr healthy. Pic 2906.,
BW-S-PI-8_P03	30/09/2025	Good	4	10-30%	30-70%	Some Af showing signs of Relictual stress 3. 2 banksias in foreground dead, (recent?). Balance of trees healthy. Even adjacent to wall. Pic 5481
BW-S-PI-8_P03	25/05/2026	Good	4	10-30%	30-70%	One Large Af in SE of site is stressed level 3 relict of drought . Else balance appears ok. Even trees at edge of wall. Pic 7968
BW-S-PI-8_P04	20/06/2022	Very good	5	2-10%	30-70%	
BW-S-PI-8_P04	20/10/2022	Very good	5	2-10%	30-70%	
BW-S-PI-8_P04	26/05/2023	Very good	5	2-10%	30-70%	
BW-S-PI-8_P04	13/10/2023	Very good	5	2-10%	30-70%	Site looks healthy ,
BW-S-PI-8_P04	25/05/2024	Very good	4	2-10%	30-70%	2024 trees look stressed with 75% of canopy. Young jarrah and Banksia attenuata dead but Note vegetation adjacent to borrr ok. Pic 197, 198,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-8_P04	25/10/2024	Very good	4	2-10%	30-70%	2024 so trees look stressed with 75% of canopy. Young jarrah and Banksia attenuata dead but Note vegetation adjacent to borrr ok. Pic 197, 198. 24Sp most site 4 some scattered af 2-3. Underst 5.,
BW-S-PI-8_P04	23/05/2025	Very good	4	2-10%	30-70%	2024 so trees look stressed with 75% of canopy. Young jarrah and Banksia attenuata dead but Note vegetation adjacent to borrr ok. Pic 197, 198. 24Sp most site 4 some scattered af 2-3. Underst 5.,
BW-S-PI-8_P04	30/09/2025	Very good	4	2-10%	30-70%	Site stable, some Relictual stress, but no further decline evident.pano pic and pic5483
BW-S-PI-8_P04	25/05/2026	Very good	4	2-10%	30-70%	Site appears stable.
BW-S-PI-8_P05	20/06/2022	Good	5	30-70%	10-30%	
BW-S-PI-8_P05	20/10/2022	Good	5	30-70%	30-70%	
BW-S-PI-8_P05	26/05/2023	Good	5	30-70%	30-70%	
BW-S-PI-8_P05	13/10/2023	Good	5	30-70%	30-70%	Site looks healthy. Adjacent veg similar P3095,3096,
BW-S-PI-8_P05	25/05/2024	Good	4	30-70%	30-70%	Site looks healthy. Adjacent veg similar P3095,3096. 2024 3 dead banksia. Several very stressed/ dead agonis on site . This death and stress pattern is repeated to south behind monitoring site. Under story stressed but ok.pic 199. About 50% canopy.,
BW-S-PI-8_P05	14/11/2024	Good	3	30-70%	30-70%	24Sp Af still very stressed, 3 some epi growth. Repeated in background. Ust ok,
BW-S-PI-8_P05	23/05/2025	Good	3	30-70%	30-70%	24Sp Af still very stressed, 3 some epi growth. Repeated in background. Ust ok,
BW-S-PI-8_P05	30/09/2025	Good	3	30-70%	30-70%	Af showing some sign of recovery. Epicormic growth, but some trees almost dead with little chance of recovery. Pattern not due to Borr. Pic5484
BW-S-PI-8_P05	25/05/2026	Good	3	30-70%	30-70%	Af recovering but bearing the scars of the drought. Some saplings appear to be doing well. Some styphelia racemosa seedlings evident pic 7970.
BW-S-PI-8_P06	20/06/2022	Good	5	30-70%	30-70%	
BW-S-PI-8_P06	20/10/2022	Good	5	30-70%	30-70%	
BW-S-PI-8_P06	26/05/2023	Good	5	30-70%	30-70%	
BW-S-PI-8_P06	13/10/2023	Good	5	30-70%	30-70%	Peppi tree to west adjacent clearing healthy. P3097,
BW-S-PI-8_P06	25/05/2024	Good	4	30-70%	30-70%	Peppi tree to west adjacent clearing healthy. P3097 2024 2 mature batt dead, 3-4 agonis very stressed / dead. Due to drought. Hh stressed but ok. Note vegetation adjacent to borrr cutting ok - Pic 200. ,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-8_P06	14/11/2024	Good	4	30-70%	30-70%	Note vegetation adjacent to borrh cutting ok - Pic 200. 24Sp 3-4 Af still stressed, some epicormic growth. Pic 2900. Hh ok 5 2904, parts dead, but most recovered . Af in background still stressed. Pic 2901. 2903,
BW-S-PI-8_P06	23/05/2025	Good	4	30-70%	30-70%	Note vegetation adjacent to borrh cutting ok - Pic 200. 24Sp 3-4 Af still stressed, some epicormic growth. Pic 2900. Hh ok 5 2904, parts dead, but most recovered . Af in background still stressed. Pic 2901. 2903,
BW-S-PI-8_P06	30/09/2025	Good	4	30-70%	30-70%	Obvious signs of Relictual stress. But this has not increased. No clear pattern due to borrh. 5485
BW-S-PI-8_P06	25/05/2026	Good	4	30-70%	30-70%	Per S 25, but E calycina is increasing at site.
BW-S-PI-8_P07	20/06/2022	Good	5	30-70%	30-70%	
BW-S-PI-8_P07	20/10/2022	Good	5	30-70%	30-70%	
BW-S-PI-8_P07	26/05/2023	Good	5	30-70%	30-70%	
BW-S-PI-8_P07	13/10/2023	Good	5	30-70%	30-70%	Jarrah tree sapling just east of cleared area stressed. P3098. All other trees ok. Cutting at this side deep.p3099. Else ok,
BW-S-PI-8_P07	25/05/2024	Good	3	30-70%	30-70%	. Else ok. 2024 - Most trees agonis and Banksia attenuata very stressed/ dead within 20 - 30 m of monitoring point. Pic 201 204. Understory stressed but ok. Highest point, pic c205 perhaps very dry. ,
BW-S-PI-8_P07	14/11/2024	Good	3	30-70%	30-70%	24Sp most Af in 20-30 m still very stressed, but with some epicormic growth, 2 stress rating. Pic 2893. Other trees em ba and after 3 rating. Understory healthy. Locally Uniform pattern of stress both in and adjacent road. Pic 2896. Healthy veg 2899.,
BW-S-PI-8_P07	23/05/2025	Good	3	30-70%	30-70%	24Sp most Af in 20-30 m still very stressed, but with some epicormic growth, 2 stress rating. Pic 2893. Other trees em ba and after 3 rating. Understory healthy. Locally Uniform pattern of stress both in and adjacent road. Pic 2896. Healthy veg 2899.,
BW-S-PI-8_P07	30/09/2025	Good	3	30-70%	30-70%	Relictual stress in Af evident. Unlikely to fully recover. Pic 5486
BW-S-PI-8_P07	25/05/2026	Good	3	30-70%	30-70%	Relictual stress still evident in af and em, but has not declined further. A number of Agonis saplings are present, pic 7976. These will potentially replaced the stressed af. Pic 7975.
BW-S-PI-8_P08	20/06/2022	Good	5	30-70%	30-70%	
BW-S-PI-8_P08	20/10/2022	Good	5	30-70%	30-70%	
BW-S-PI-8_P08	26/05/2023	Good	5	30-70%	30-70%	
BW-S-PI-8_P08	13/10/2023	Good	5	30-70%	30-70%	Site looks healthy, no stress in trees or shrubs,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-PI-8_P08	25/05/2024	Good	4	30-70%	30-70%	Site looks healthy, no stress in trees or shrubs. 2024 8-10 Adonis saplings dead, 1 small B grandis dead in site. Scattered dead/stressed ag and ba in background. Under story stressed but ok. Vegetation adjacent to cutting ok pic 206.,
BW-S-PI-8_P08	14/11/2024	Good	4	30-70%	30-70%	24Sp ,Äüdead,Äü Most Af saplings now have epicormic growth. Pic 2891. Understorey healthy 5. Veg adjacent cutting ok, pic 2893.,
BW-S-PI-8_P08	23/05/2025	Good	4	30-70%	30-70%	24Sp ,Äüdead,Äü Most Af saplings now have epicormic growth. Pic 2891. Understorey healthy 5. Veg adjacent cutting ok, pic 2893.,
BW-S-PI-8_P08	30/09/2025	Good	4	30-70%	30-70%	Site is stable, no further degradation.
BW-S-PI-8_P08	25/05/2026	Good	4	30-70%	30-70%	Site is stable.pic looking west along cutting pic 7977.
BW-S-PI-8_T1E	20/10/2022	Excellent	5	<2%	30-70%	
BW-S-PI-8_T1E	26/05/2023	Excellent	5	<2%	30-70%	
BW-S-PI-8_T1E	13/10/2023	Excellent	5	<2%	30-70%	
BW-S-PI-8_T1E	25/05/2024	Excellent	4	<2%	30-70%	
BW-S-PI-8_T1E	10/11/2024	Excellent	4	<2%	30-70%	
BW-S-PI-8_T1E	23/05/2025	Excellent	4	<2%	30-70%	
BW-S-PI-8_T1W	20/10/2022	Excellent	5	<2%	30-70%	
BW-S-PI-8_T1W	26/05/2023	Excellent	5	<2%	30-70%	
BW-S-PI-8_T1W	13/10/2023	Excellent	5	<2%	30-70%	
BW-S-PI-8_T1W	25/05/2024	Excellent	4	<2%	30-70%	
BW-S-PI-8_T1W	10/11/2024	Excellent	4	<2%	30-70%	
BW-S-PI-8_T1W	23/05/2025	Excellent	4	<2%	30-70%	
BW-S-R-1_T1E	22/11/2019	Very good				
BW-S-R-1_T1E	22/05/2020	Very good		<2%	30-70%	
BW-S-R-1_T1E	22/10/2020	Very good	5	<2%	30-70%	
BW-S-R-1_T1E	10/12/2021	Very good	5	<2%	30-70%	
BW-S-R-1_T1E	26/05/2022	Very good	4	<2%	30-70%	
BW-S-R-1_T1E	13/10/2022	Very good	5	<2%	30-70%	
BW-S-R-1_T1E	22/05/2023	Very good	4	<2%	30-70%	
BW-S-R-1_T1E	10/10/2023	Very good	4	<2%	30-70%	
BW-S-R-1_T1E	24/05/2024	Very good	4	<2%	30-70%	
BW-S-R-1_T1E	10/08/2024	Very good	4	<2%	30-70%	
BW-S-R-1_T1E	23/05/2025	Very good	4	<2%	30-70%	
BW-S-R-1_T1W	22/11/2019	Excellent				
BW-S-R-1_T1W	22/05/2020	Very good		<2%	30-70%	
BW-S-R-1_T1W	22/10/2020	Very good	4	<2%	30-70%	
BW-S-R-1_T1W	10/12/2021	Very good	4	<2%	30-70%	
BW-S-R-1_T1W	26/05/2022	Very good	4	<2%	30-70%	
BW-S-R-1_T1W	13/10/2022	Very good	4	<2%	30-70%	
BW-S-R-1_T1W	22/05/2023	Very good	4	<2%	30-70%	
BW-S-R-1_T1W	10/10/2023	Very good	4	<2%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
BW-S-R-1_T1W	24/05/2024	Very good	4	<2%	30-70%	
BW-S-R-1_T1W	10/08/2024	Very good	4	<2%	30-70%	
BW-S-R-1_T1W	23/05/2025	Very good	4	<2%	30-70%	
BW-S-R-1_T2N	12/03/2019	Excellent				
BW-S-R-1_T2N	22/05/2020	Excellent		<2%	30-70%	
BW-S-R-1_T2N	22/10/2020	Excellent	3	<2%	30-70%	
BW-S-R-1_T2N	10/12/2021	Excellent	3	<2%	30-70%	
BW-S-R-1_T2N	26/05/2022	Excellent	4	<2%	30-70%	
BW-S-R-1_T2N	13/10/2022	Excellent	4	<2%	30-70%	
BW-S-R-1_T2N	22/05/2023	Excellent	4	<2%	30-70%	
BW-S-R-1_T2N	10/10/2023	Excellent	4	<2%	30-70%	
BW-S-R-1_T2N	24/05/2024	Excellent	4	<2%	30-70%	
BW-S-R-1_T2N	10/08/2024	Excellent	4	<2%	30-70%	
BW-S-R-1_T2N	23/05/2025	Excellent	4	<2%	30-70%	
BW-S-R-1_T2S	12/03/2019	Excellent				
BW-S-R-1_T2S	22/05/2020	Excellent		<2%	>70%	
BW-S-R-1_T2S	22/10/2020	Excellent		<2%	>70%	
BW-S-R-1_T2S	10/12/2021	Excellent		<2%	>70%	
BW-S-R-1_T2S	26/05/2022	Excellent	4	<2%	>70%	
BW-S-R-1_T2S	13/10/2022	Excellent	5	<2%	>70%	
BW-S-R-1_T2S	22/05/2023	Excellent	5	<2%	>70%	
BW-S-R-1_T2S	10/10/2023	Excellent	4	<2%	>70%	
BW-S-R-1_T2S	24/05/2024	Excellent	4	<2%	>70%	
BW-S-R-1_T2S	10/08/2024	Excellent	4	<2%	>70%	
BW-S-R-1_T2S	23/05/2025	Excellent	4	<2%	>70%	
CP-NS-R-1_T1E	06/11/2019	Very good				
CP-NS-R-1_T1E	20/05/2020	Very good		2-10%		
CP-NS-R-1_T1E	10/12/2020	Very good	5	10-30%	30-70%	
CP-NS-R-1_T1E	11/09/2021	Very good	5	10-30%	30-70%	
CP-NS-R-1_T1E	24/05/2022	Very good	5	10-30%	30-70%	
CP-NS-R-1_T1E	28/09/2022	Very good	5	10-30%	30-70%	
CP-NS-R-1_T1E	24/05/2023	Very good	5	10-30%	30-70%	
CP-NS-R-1_T1E	10/11/2023	Very good	5	10-30%	30-70%	
CP-NS-R-1_T1E	23/05/2024	Very good	4	10-30%	30-70%	
CP-NS-R-1_T1E	10/10/2024	Very good	4	10-30%	30-70%	
CP-NS-R-1_T1E	29/05/2025	Very good	4	10-30%	30-70%	,A25 cc thin. Vj 20% dead.
CP-NS-R-1_T1E	15/10/2025	Very good	4	10-30%	30-70%	S25 stable per A25. Site healthy
CP-NS-R-1_T1E	28/05/2026	Very good	4	10-30%	30-70%	Native veg stable. Weed cover has increased, close to 30-70
CP-NS-R-1_T1W	11/06/2019	Excellent				
CP-NS-R-1_T1W	20/05/2020	Excellent		<2%	30-70%	
CP-NS-R-1_T1W	10/12/2020	Excellent	5	<2%	30-70%	
CP-NS-R-1_T1W	11/09/2021	Excellent	5	<2%	30-70%	
CP-NS-R-1_T1W	24/05/2022	Excellent	5	<2%	30-70%	
CP-NS-R-1_T1W	28/09/2022	Excellent	5	<2%	30-70%	
CP-NS-R-1_T1W	24/05/2023	Excellent	5	<2%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
CP-NS-R-1_T1W	10/11/2023	Excellent	5	<2%	30-70%	
CP-NS-R-1_T1W	23/05/2024	Excellent	4	<2%	30-70%	
CP-NS-R-1_T1W	10/10/2024	Excellent	4	<2%	30-70%	
CP-NS-R-1_T1W	29/05/2025	Excellent	4	<2%	30-70%	,A25 Hp 50% else per S24
CP-NS-R-1_T1W	15/10/2025	Excellent	4	<2%	30-70%	S25 per A25
CP-NS-R-1_T1W	28/05/2026	Excellent	4	<2%	30-70%	Hp showing signs of Recovery. Else stable.Vj at 2-10%.
CP-NS-R-2_T1N	26/09/2020	Degraded	5	10-30%	30-70%	
CP-NS-R-2_T1N	15/10/2021	Degraded	5	10-30%	30-70%	
CP-NS-R-2_T1N	26/05/2022	Degraded	5	10-30%	30-70%	
CP-NS-R-2_T1N	26/09/2022	Degraded	5	10-30%	30-70%	
CP-NS-R-2_T1N	25/05/2023	Degraded	5	10-30%	30-70%	
CP-NS-R-2_T1N	10/12/2023	Degraded	5	30-70%	30-70%	
CP-NS-R-2_T1N	24/05/2024	Degraded	5	30-70%	30-70%	
CP-NS-R-2_T1N	09/10/2024	Degraded	5	30-70%	30-70%	
CP-NS-R-2_T1N	23/05/2025	Degraded	5	30-70%	30-70%	,A site is dry but stable.
CP-NS-R-2_T1N	16/10/2025	Degraded	5	30-70%	30-70%	Site is damp, herbs floriferous
CP-NS-R-2_T1N	26/05/2026	Degraded	5	30-70%	30-70%	Site dry but stable.
CP-NS-R-2_T1S	20/10/2020	Good	5	10-30%	30-70%	
CP-NS-R-2_T1S	15/10/2021	Good	5			
CP-NS-R-2_T1S	26/05/2022	Good	5	30-70%	2-10%	
CP-NS-R-2_T1S	29/09/2022	Good	5	10-30%	30-70%	
CP-NS-R-2_T1S	25/05/2023	Good	5	10-30%	30-70%	
CP-NS-R-2_T1S	10/12/2023	Good	5	10-30%	30-70%	
CP-NS-R-2_T1S	24/05/2024	Good	5	10-30%	30-70%	
CP-NS-R-2_T1S	09/10/2024	Good	5	10-30%	30-70%	
CP-NS-R-2_T1S	23/05/2025	Good	5	10-30%	30-70%	,A25 site is dry but appears stable.
CP-NS-R-2_T1S	16/10/2025	Good	5	10-30%	30-70%	Site is stable, healthy
CP-NS-R-2_T1S	26/05/2026	Good	5	10-30%	30-70%	Site stable
CP-S-PI-1_P01	19/11/2019	Degraded		10-30%		
CP-S-PI-1_P01	20/05/2020	Degraded		10-30%	10-30%	
CP-S-PI-1_P01	15/10/2021	Degraded	5	30-70%	10-30%	Sheep foot plugs in clay,
CP-S-PI-1_P01	26/05/2022	Degraded	5	30-70%	10-30%	Fire track inundated, as expected in clay pan after rain,
CP-S-PI-1_P01	19/10/2022	Degraded	5	30-70%	10-30%	Fire track inundated, as expected in clay pan after rain,
CP-S-PI-1_P01	25/05/2023	Degraded	5	30-70%	10-30%	Fire track slightly inundated. Dry autumn ,
CP-S-PI-1_P01	29/09/2023	Degraded	5	30-70%	10-30%	Fire track slightly inundated. Dry autumn ,
CP-S-PI-1_P01	24/05/2024	Degraded	5	30-70%	10-30%	Vegetation appears healthy, even after the dry summer.,
CP-S-PI-1_P01	09/10/2024	Degraded	5	30-70%	10-30%	Vegetation appears healthy, even after the dry summer. 2024 sp healthy inundated ,
CP-S-PI-1_P01	23/05/2025	Degraded	5	30-70%	10-30%	Vegetation appears healthy, even after the dry summer. 2024 sp healthy inundated ,A25 site stable.
CP-S-PI-1_P01	16/10/2025	Degraded	5	30-70%	10-30%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
CP-S-PI-1_P01	26/05/2026	Degraded	5	30-70%	10-30%	Site stable
CP-S-PI-1_P02	19/11/2019	Good		2-10%		Farm,
CP-S-PI-1_P02	20/05/2020	Good		2-10%	10-30%	Farm,
CP-S-PI-1_P02	15/10/2021	Good	5	10-30%	10-30%	
CP-S-PI-1_P02	26/05/2022	Good	5	10-30%	10-30%	No native annuals germinated yet,
CP-S-PI-1_P02	19/10/2022	Good	5	10-30%	10-30%	Track inundated as expected for this time of year. ,
CP-S-PI-1_P02	25/05/2023	Good	5	10-30%	10-30%	Track dry,
CP-S-PI-1_P02	29/09/2023	Good	5	10-30%	10-30%	Track inundated ,
CP-S-PI-1_P02	24/05/2024	Good	5	10-30%	10-30%	Shrubs appear healthy.,
CP-S-PI-1_P02	09/10/2024	Good	5	10-30%	10-30%	Shrubs appear healthy. 24 site inundated.,
CP-S-PI-1_P02	23/05/2025	Good	5	10-30%	10-30%	Shrubs appear healthy. 24 site inundated.,25A site is stable
CP-S-PI-1_P02	16/10/2025	Good	5	10-30%	10-30%	
CP-S-PI-1_P02	26/05/2026	Good	5	10-30%	10-30%	Site is stable.
CP-S-PI-1_P03	19/11/2019	Very good		2-10%		
CP-S-PI-1_P03	20/05/2020	Very good		2-10%	30-70%	Adjacent to fire access track,
CP-S-PI-1_P03	15/10/2021	Very good	5	2-10%	30-70%	
CP-S-PI-1_P03	26/05/2022	Very good	5	2-10%	30-70%	
CP-S-PI-1_P03	19/10/2022	Very good	5	2-10%	30-70%	
CP-S-PI-1_P03	25/05/2023	Very good	5	2-10%	30-70%	Dry autumn, no water.,
CP-S-PI-1_P03	29/09/2023	Very good	5	2-10%	30-70%	Damp lots of herbs,
CP-S-PI-1_P03	24/05/2024	Very good	5	2-10%	30-70%	Site appears healthy and stable. ,
CP-S-PI-1_P03	09/10/2024	Very good	5	2-10%	30-70%	Site appears healthy and stable. 2024 very healthy.,
CP-S-PI-1_P03	23/05/2025	Very good	5	2-10%	30-70%	Site appears healthy and stable. 2024 very healthy.,Site is very dry, but appears stable.
CP-S-PI-1_P03	16/10/2025	Very good	5	2-10%	30-70%	
CP-S-PI-1_P03	26/05/2026	Very good	5	2-10%	30-70%	
CP-S-PI-1_T1N	11/05/2019	Degraded				
CP-S-PI-1_T1N	20/05/2020	Degraded		30-70%	10-30%	
CP-S-PI-1_T1N	20/10/2020	Degraded		30-70%	10-30%	
CP-S-PI-1_T1N	15/10/2021	Degraded	5	30-70%	10-30%	
CP-S-PI-1_T1N	26/05/2022	Degraded	5	30-70%	10-30%	
CP-S-PI-1_T1N	29/09/2022	Degraded	5	30-70%	10-30%	
CP-S-PI-1_T1N	25/05/2023	Degraded	5	30-70%	10-30%	
CP-S-PI-1_T1N	10/12/2023	Degraded	5	30-70%	10-30%	
CP-S-PI-1_T1N	24/05/2024	Degraded	5	30-70%	10-30%	
CP-S-PI-1_T1N	09/10/2024	Degraded	5	30-70%	10-30%	
CP-S-PI-1_T1N	23/05/2025	Degraded	5	30-70%	10-30%	,A25 site stable
CP-S-PI-1_T1N	16/10/2025	Degraded	5	30-70%	10-30%	S25 site stable
CP-S-PI-1_T1N	26/05/2026	Degraded	5	30-70%	10-30%	Site stable.
CP-S-PI-1_T1S	11/05/2019	Good				
CP-S-PI-1_T1S	20/05/2020	Good		10-30%	30-70%	
CP-S-PI-1_T1S	20/10/2020	Good	5	10-30%	30-70%	
CP-S-PI-1_T1S	15/10/2021	Good	5	10-30%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
CP-S-PI-1_T1S	26/05/2022	Good	5	10-30%	30-70%	
CP-S-PI-1_T1S	29/09/2022	Good	5	10-30%	30-70%	
CP-S-PI-1_T1S	25/05/2023	Good	5	10-30%	30-70%	
CP-S-PI-1_T1S	10/12/2023	Good	5	10-30%	30-70%	
CP-S-PI-1_T1S	24/05/2024	Good	5	10-30%	30-70%	
CP-S-PI-1_T1S	09/10/2024	Good	5	10-30%	30-70%	
CP-S-PI-1_T1S	23/05/2025	Good	5	10-30%	30-70%	,A site stable
CP-S-PI-1_T1S	16/10/2025	Very good	5	10-30%	30-70%	S25 site very stable
CP-S-PI-1_T1S	26/05/2026	Very good	5	10-30%	30-70%	Site stable
CPS-S-PI-1_P01	28/10/2020	Degraded	5	30-70%	10-30%	10 Cm inundated fire break ,
CPS-S-PI-1_P02	28/10/2020	Good	5	10-30%	10-30%	Site fully inundated, 20x20m. 10cm,
CPS-S-PI-1_P03	28/10/2020	Very good	5	2-10%	30-70%	Adjacent to fire access track,
TW-S-PI-1_P01	21/11/2019	Degraded		<2%		Previously cleared for farming, reveg site,
TW-S-PI-1_P01	26/05/2020	Degraded		<2%	10-30%	Previously cleared for farming, reveg site,
TW-S-PI-1_P01	28/10/2020	Degraded	5	<2%	10-30%	Previously cleared for farming, reveg site,
TW-S-PI-1_P01	14/10/2021	Degraded	5	<2%	10-30%	Historic farm but very good reveg in progress,
TW-S-PI-1_P01	26/05/2022	Degraded	5	<2%	10-30%	Historic farm but very good reveg in progress,
TW-S-PI-1_P01	19/10/2022	Degraded	5	<2%	10-30%	Historic farm but very good reveg in progress,
TW-S-PI-1_P01	25/05/2023	Degraded	5	<2%	10-30%	Historic farm but very good reveg in progress,
TW-S-PI-1_P01	29/09/2023	Degraded	5	<2%	10-30%	Historic farm but very good reveg in progress, note weeds from the verge have started to spread into the area, and need to be controlled ,
TW-S-PI-1_P01	24/05/2024	Degraded	5	<2%	10-30%	Historic farm but very good reveg in progress, note weeds from the verge have started to spread into the area, and need to be controlled . 2024 canopy health is good. Some melaleuca thymoides shrubs are recently dead.,
TW-S-PI-1_P01	07/11/2024	Degraded	5	<2%	10-30%	Historic farm but very good reveg in progress, note weeds from the verge have started to spread into the area, and need to be controlled . 2024 canopy health is good. Some melaleuca thymoides shrubs are recently dead. 2024 sp no change stable ,
TW-S-PI-1_P01	23/05/2025	Degraded	5	<2%	10-30%	Historic farm but very good reveg in progress, note weeds from the verge have started to spread into the area, and need to be controlled . 2024 canopy health is good. Some melaleuca thymoides shrubs are recently dead. 2024 sp no change stable ,A25 site is stable
TW-S-PI-1_P01	17/10/2025	Degraded	5	<2%	10-30%	S25 site stable.
TW-S-PI-1_P01	26/05/2026	Degraded	5	<2%	10-30%	Site is stable.
TW-S-PI-1_P02	21/11/2019	Good		<2%		

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-1_P02	26/05/2020	Good		<2%	10-30%	Historically cleared and farmed. Now a revegetation site.,
TW-S-PI-1_P02	28/10/2020	Good	4	<2%	10-30%	Historically cleared and farmed. Now a revegetation site.,
TW-S-PI-1_P02	14/10/2021	Good	4	<2%	10-30%	Very good revegetation,
TW-S-PI-1_P02	26/05/2022	Good	4	<2%	10-30%	Very good revegetation,
TW-S-PI-1_P02	19/10/2022	Good	4	<2%	10-30%	Very good revegetation,
TW-S-PI-1_P02	25/05/2023	Good	4	<2%	10-30%	Very good revegetation, note stress in tuart trees,!but this appears stable.,
TW-S-PI-1_P02	29/09/2023	Good	4	<2%	10-30%	Very good revegetation, note stress in tuart trees,!but this appears stable.,
TW-S-PI-1_P02	24/05/2024	Good	4	2-10%	10-30%	Very good revegetation, note stress in tuart trees,!but this appears stable. 2024 many of the agonis are stressed / dead in adjacent to site. ,
TW-S-PI-1_P02	07/11/2024	Good	4	2-10%	10-30%	Very good revegetation, note stress in tuart trees,!but this appears stable. 2024 many of the agonis are stressed / dead in adjacent to site. 2024 sp same no change. Some Agonis coming back. ,
TW-S-PI-1_P02	23/05/2025	Good	4	2-10%	10-30%	Very good revegetation, note stress in tuart trees,!but this appears stable. 2024 many of the agonis are stressed / dead in adjacent to site. 2024 sp same no change. Some Agonis coming back. ,A25 some fresh stress in Af. Most relictual. Site about 50% canopy cover.
TW-S-PI-1_P02	17/10/2025	Good	4	2-10%	10-30%	S25 Eg thin Af thin but overall 4
TW-S-PI-1_P02	26/05/2026	Good	4	2-10%	10-30%	Per S25
TW-S-PI-1_P03	21/11/2019	Degraded		2-10%		
TW-S-PI-1_P03	26/05/2020	Degraded		2-10%	30-70%	
TW-S-PI-1_P03	28/10/2020	Degraded	5	2-10%	30-70%	
TW-S-PI-1_P03	15/10/2021	Degraded	5	<2%	30-70%	Reveg site. Weed control is being undertaken ,
TW-S-PI-1_P03	26/05/2022	Degraded	5	<2%	30-70%	Reveg site. Weed control is being undertaken ,
TW-S-PI-1_P03	19/10/2022	Degraded	5	<2%	30-70%	Reveg site. Weed control is being undertaken ,
TW-S-PI-1_P03	25/05/2023	Degraded	5	<2%	30-70%	Reveg site. Weed control is being undertaken ,
TW-S-PI-1_P03	29/09/2023	Degraded	5	<2%	30-70%	Reveg site. Weed control is being undertaken, rabbit proof fence has been damaged as part of project works,
TW-S-PI-1_P03	24/05/2024	Degraded	4	<2%	30-70%	Reveg site. Weed control is being undertaken, rabbit proof fence has been damaged as part of project works. Many of agonis, Acacia saligna at site are very stressed / or dead in the site . This stress is evident throughout site.pic 192,
TW-S-PI-1_P03	07/11/2024	Degraded	4	<2%	30-70%	Many of agonis, Acacia saligna at site are very stressed / or dead in the site . This stress is evident throughout

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
						site.pic 192. 2024 sp stressed plants are looking alive (just). Tuarts stable ,
TW-S-PI-1_P03	23/05/2025	Degraded	4	<2%	30-70%	Many of agonis, Acacia saligna at site are very stressed / or dead in the site . This stress is evident throughout site.pic 192. 2024 sp stressed plants are looking alive (just). Tuarts stable ,A25 Tuart and Cc stressed some 20-30%. Close to 3 for site. Relictual stress in Acacia evident some dead.
TW-S-PI-1_P03	17/10/2025	Degraded	4	<2%	30-70%	S25 site is stable
TW-S-PI-1_P03	26/05/2026	Degraded	4	2-10%	30-70%	Site is stable but weeds are increasing.
TW-S-PI-2_P01	31/07/2020	Very good		10-30%	30-70%	
TW-S-PI-2_P01	28/10/2020	Very good	5	30-70%	30-70%	Site is in the border of being good ,
TW-S-PI-2_P01	14/10/2021	Very good	5	30-70%	30-70%	
TW-S-PI-2_P01	26/05/2022	Very good	5	30-70%	30-70%	
TW-S-PI-2_P01	19/10/2022	Very good	5	30-70%	30-70%	Weeds are invading the condition of the site is declining ,
TW-S-PI-2_P01	25/05/2023	Very good	5	30-70%	30-70%	Weeds are invading the condition of the site is declining. Autumn dry no annual weeds. ,
TW-S-PI-2_P01	29/09/2023	Very good	5	30-70%	30-70%	Weeds are invading the condition of the site is declining. Autumn dry no annual weeds. Briza maxima, Ursinia invading ,
TW-S-PI-2_P01	24/05/2024	Very good	4	30-70%	30-70%	Scattered stressed agonis, most hibbertia hypericoides dead / stressed in site. Pic 168,
TW-S-PI-2_P01	11/10/2024	Very good	4	30-70%	30-70%	Scattered stressed agonis, most hibbertia hypericoides dead / stressed in site. Pic 168. 24Sp Af Hh 3, else 4. Pic 1808.,
TW-S-PI-2_P01	23/05/2025	Very good	4	30-70%	30-70%	Scattered stressed agonis, most hibbertia hypericoides dead / stressed in site. Pic 168. 24Sp Af Hh 3, else 4. Pic 1808.,A2. Hh 75% stressed. Dav div also stressed. Loss of structure & weeds makes site close to Good.
TW-S-PI-2_P01	30/09/2025	Very good	4	30-70%	30-70%	Signs of Relictual stress evident in Hh, Af, but no further decline.
TW-S-PI-2_P01	26/05/2026	Very good	4	30-70%	30-70%	Per S25
TW-S-PI-2_P02	31/07/2020	Good		10-30%	30-70%	
TW-S-PI-2_P02	28/10/2020	Good	5	30-70%	30-70%	Weed cover increased significantly ,
TW-S-PI-2_P02	14/10/2021	Good	5	30-70%	30-70%	
TW-S-PI-2_P02	26/05/2022	Good	5	30-70%	30-70%	
TW-S-PI-2_P02	19/10/2022	Good	5	30-70%	30-70%	
TW-S-PI-2_P02	25/05/2023	Good	5	30-70%	30-70%	
TW-S-PI-2_P02	29/09/2023	Good	5	30-70%	30-70%	
TW-S-PI-2_P02	24/05/2024	Good	4	30-70%	30-70%	Scattered dead/ stressed Banksia, agonis and Xylomelon. ,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-2_P02	11/10/2024	Good	4	30-70%	30-70%	Scattered dead/ stressed Banksia, agonis and Xylomelon. 24Sp most veg 4,
TW-S-PI-2_P02	23/05/2025	Good	4	30-70%	30-70%	Scattered dead/ stressed Banksia, agonis and Xylomelon. 24Sp most veg 4,A25. Site per 24Sp.
TW-S-PI-2_P02	30/09/2025	Good	4	30-70%	30-70%	S25, site stable.
TW-S-PI-2_P02	26/05/2026	Good	4	30-70%	30-70%	Ba, Af thin but ok.
TW-S-PI-2_P03	31/07/2020	Good		10-30%	30-70%	
TW-S-PI-2_P03	28/10/2020	Good	5	10-30%	30-70%	
TW-S-PI-2_P03	14/10/2021	Good	5	10-30%	30-70%	
TW-S-PI-2_P03	26/05/2022	Good	5	10-30%	30-70%	Peppermint, Banksia and Spyridium crowns thin, hence 4 rating,
TW-S-PI-2_P03	19/10/2022	Good	4	30-70%	30-70%	Peppermint, Banksia and Spyridium crowns thin, hence 4 rating,
TW-S-PI-2_P03	25/05/2023	Good	4	30-70%	30-70%	Peppermint, Banksia and Spyridium crowns thin, hence 4 rating,
TW-S-PI-2_P03	29/09/2023	Good	4	30-70%	30-70%	Peppermint, Banksia and Spyridium crowns thin, hence 4 rating/ 2 Spyridium dead, possibly old age,
TW-S-PI-2_P03	24/05/2024	Good	4	30-70%	30-70%	2024 3 Spyridium dead and 2 very stressed. Several Young melaleuca thymoides also dead in site. This appears localised and maybe exacerbated by drought. Pic 167.,
TW-S-PI-2_P03	11/10/2024	Good	4	30-70%	30-70%	2024 3 Spyridium dead and 2 very stressed. Several Young melaleuca thymoides also dead in site. This appears localised and maybe exacerbated by drought. Pic 167. 24Sp, ~10 Sg dead., 1x Mth dead, Hh 4. Adjacent BORR ok pic 1806.Las pet 5 1807.,
TW-S-PI-2_P03	23/05/2025	Good	4	30-70%	30-70%	2024 3 Spyridium dead and 2 very stressed. Several Young melaleuca thymoides also dead in site. This appears localised and maybe exacerbated by drought. Pic 167. 24Sp, ~10 Sg dead., 1x Mth dead, Hh 4. Adjacent BORR ok pic 1806.Las pet 5 1807.,Stressed Sg almost all dead. Some residual stress in Af. Adjacent borr side veg ok. One large Ba fresh dead. Las pet ok.
TW-S-PI-2_P03	30/09/2025	Good	4	30-70%	30-70%	Site stable no further deterioration.
TW-S-PI-2_P03	26/05/2026	Good	4	30-70%	30-70%	Residual stress clear in one Af NE site , else ok
TW-S-PI-2_P04	31/07/2020	Good		10-30%	30-70%	
TW-S-PI-2_P04	28/10/2020	Good	4	30-70%	30-70%	Banksia and agonis have some thinning of the canopy.,
TW-S-PI-2_P04	14/10/2021	Good	4	30-70%	30-70%	
TW-S-PI-2_P04	26/05/2022	Good	4	30-70%	30-70%	
TW-S-PI-2_P04	19/10/2022	Good	4	30-70%	30-70%	
TW-S-PI-2_P04	25/05/2023	Good	4	30-70%	30-70%	
TW-S-PI-2_P04	29/09/2023	Good	4	30-70%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-2_P04	24/05/2024	Good	4	30-70%	30-70%	Scattered dead/ very stressed agonis. Some dead and healthy Agonis adjacent to borr pic 166.,
TW-S-PI-2_P04	11/10/2024	Good	4	30-70%	30-70%	Scattered dead/ very stressed agonis. Some dead and healthy Agonis adjacent to borr pic 166. Site healthy even adjacent to Borr pic 1803.,
TW-S-PI-2_P04	23/05/2025	Good	4	30-70%	30-70%	Scattered dead/ very stressed agonis. Some dead and healthy Agonis adjacent to borr pic 166. Site healthy even adjacent to Borr pic 1803.,A25 no new stress evident. Some relictual stress esp in Af. Dead Ba.
TW-S-PI-2_P04	30/09/2025	Good	4	30-70%	30-70%	S25, per a25. One af almost dead, some epicormic growth. Pic 2.28
TW-S-PI-2_P04	26/05/2026	Good	4	30-70%	30-70%	Per A25, site is close to BORR pic 7983
TW-S-PI-2_P05	31/07/2020	Degraded		10-30%	30-70%	
TW-S-PI-2_P05	09/09/2020	Degraded		10-30%	30-70%	
TW-S-PI-2_P05	14/10/2021	Degraded	4	10-30%	30-70%	
TW-S-PI-2_P05	26/05/2022	Degraded	4	10-30%	30-70%	
TW-S-PI-2_P05	19/10/2022	Degraded	4	>70%	30-70%	
TW-S-PI-2_P05	25/05/2023	Degraded	4	>70%	30-70%	
TW-S-PI-2_P05	29/09/2023	Degraded	4	>70%	30-70%	
TW-S-PI-2_P05	24/05/2024	Degraded	4	>70%	30-70%	Scattered dead/ stressed agonis in vegetation. This is similar adjacent to Borr, pic 165,
TW-S-PI-2_P05	11/10/2024	Degraded	4	>70%	30-70%	Scattered dead/ stressed agonis in vegetation. This is similar adjacent to Borr, pic 165, 24Sp per 24 aut. Pic 1801.,
TW-S-PI-2_P05	23/05/2025	Degraded	4	>70%	30-70%	Scattered dead/ stressed agonis in vegetation. This is similar adjacent to Borr, pic 165, 24Sp per 24 aut. Pic 1801.,A25 site is dry, some relictual stress evident . Grass weeds not all fully germinated. Could be rated as good.
TW-S-PI-2_P05	30/09/2025	Degraded	4	>70%	30-70%	S25, heavy weed load makes it D. Site is stable.
TW-S-PI-2_P05	26/05/2026	Degraded	4	>70%	30-70%	A25 Eg, Af, Ba thin but ok
TW-S-PI-2_P06	31/07/2020	Degraded		10-30%	30-70%	
TW-S-PI-2_P06	28/10/2020	Degraded	5	>70%	30-70%	
TW-S-PI-2_P06	14/10/2021	Degraded	5	>70%	30-70%	
TW-S-PI-2_P06	26/05/2022	Degraded	5	>70%	30-70%	
TW-S-PI-2_P06	19/10/2022	Degraded	5	>70%	30-70%	
TW-S-PI-2_P06	25/05/2023	Degraded	5	>70%	30-70%	
TW-S-PI-2_P06	29/09/2023	Degraded	5	>70%	30-70%	
TW-S-PI-2_P06	24/05/2024	Degraded	4	>70%	30-70%	Scattered patchy dead/ stressed agonis in vegetation in Manea park. Note vegetation adjacent to Borr is healthy at this point. Pic 164,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-2_P06	11/10/2024	Degraded	4	>70%	30-70%	Scattered patchy dead/ stressed agonis in vegetation in Manea park. Note vegetation adjacent to Borr is healthy at this point. Pic 164, 24Sp veg mostly 4 . Adjacent BORR healthy pic 1800.,
TW-S-PI-2_P06	23/05/2025	Degraded	4	>70%	30-70%	Scattered patchy dead/ stressed agonis in vegetation in Manea park. Note vegetation adjacent to Borr is healthy at this point. Pic 164, 24Sp veg mostly 4 . Adjacent BORR healthy pic 1800.,A25 per Sp25
TW-S-PI-2_P06	30/09/2025	Degraded	4	>70%	30-70%	Site is stable, Relictual stress evident, but no real improvement.
TW-S-PI-2_P06	26/05/2026	Degraded	4	>70%	30-70%	single Af almost dead but has epi growth. Some fresh foliage death in large Af pic 7984, but this is scattered, not uniform across bush. Adjacent BORR ok.pic 6985
TW-S-PI-2_P07	31/07/2020	Degraded		10-30%	30-70%	
TW-S-PI-2_P07	28/10/2020	Degraded	5	>70%	30-70%	
TW-S-PI-2_P07	14/10/2021	Degraded	5	>70%	30-70%	
TW-S-PI-2_P07	26/05/2022	Degraded	5	>70%	30-70%	
TW-S-PI-2_P07	19/10/2022	Degraded	5	>70%	30-70%	
TW-S-PI-2_P07	25/05/2023	Degraded	5	>70%	30-70%	
TW-S-PI-2_P07	29/09/2023	Degraded	5	>70%	30-70%	
TW-S-PI-2_P07	24/05/2024	Degraded	4	>70%	30-70%	Very stressed Agonis scattered in vegetation. Note adjacent to Borr clearing pic 162, 163. Affect is consistent away from borr. ,
TW-S-PI-2_P07	11/10/2024	Degraded	4	>70%	30-70%	Very stressed Agonis scattered in vegetation. Note adjacent to Borr clearing pic 162, 163. Affect is consistent away from borr. 24Sp trans veg 5. Adjacent some deathsAf. Pic - 1799,
TW-S-PI-2_P07	23/05/2025	Degraded	4	>70%	30-70%	Very stressed Agonis scattered in vegetation. Note adjacent to Borr clearing pic 162, 163. Affect is consistent away from borr. 24Sp trans veg 5. Adjacent some deathsAf. Pic - 1799,A25 af 3-4 in monitoring area. Adjacent dead per 24. Large Eg in ma still healthy.
TW-S-PI-2_P07	30/09/2025	Degraded	4	>70%	30-70%	S25 site is stable.pic 2:38 highest point in area. No clear pattern establishing with scattered death / stress evident. Pic 241
TW-S-PI-2_P07	26/05/2026	Degraded	4	>70%	30-70%	Eg, Af, thin no Ba evident has it all died? No clear pattern in death. Pic 7841
TW-S-PI-2_P08	31/07/2020	Completely degraded		>70%	2-10%	
TW-S-PI-2_P08	28/10/2020	Completely degraded	4	>70%	2-10%	
TW-S-PI-2_P08	14/10/2021	Completely degraded	4	>70%	2-10%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-2_P08	26/05/2022	Completely degraded	4	>70%	2-10%	
TW-S-PI-2_P08	19/10/2022	Completely degraded	4	>70%	10-30%	Small tuart tree is very stressed,
TW-S-PI-2_P08	25/05/2023	Completely degraded	4	>70%	10-30%	Small tuart tree is very stressed, still stressed. ,
TW-S-PI-2_P08	29/09/2023	Completely degraded	4	>70%	10-30%	Small jarrah tree is very stressed, still stressed. / still stressed ,
TW-S-PI-2_P08	24/05/2024	Completely degraded	3	>70%	10-30%	Small jarrah tree is very stressed, still stressed. / still stressed. 2024 dead. Most Agonis is very stressed in the site 2 rating. Pic 160, 161.,
TW-S-PI-2_P08	11/10/2024	Completely degraded	3	>70%	10-30%	Small jarrah tree is very stressed, still stressed. / still stressed. 2024 dead. Most Agonis is very stressed in the site 2 rating. Pic 160, 161. 24 sp af 3/4 part recovery.pic 1797. Double gee.,
TW-S-PI-2_P08	23/05/2025	Completely degraded	3	>70%	10-30%	Small jarrah tree is very stressed, still stressed. / still stressed. 2024 dead. Most Agonis is very stressed in the site 2 rating. Pic 160, 161. 24 sp af 3/4 part recovery.pic 1797. Double gee.,A25, af 2-3 rating Residual stress.
TW-S-PI-2_P08	30/09/2025	Completely degraded	3	>70%	10-30%	S25, site stable, no deterioration. Some Af still very stressed, but others are ok.
TW-S-PI-2_P08	26/05/2026	Completely degraded	4	>70%	10-30%	Appears that Af at site have recovered, so on balance site is 4 . But relictual stress still evident in some Af.
TW-S-PI-2_P09	31/07/2020	Good		10-30%	30-70%	
TW-S-PI-2_P09	28/10/2020	Good	4	>70%	30-70%	
TW-S-PI-2_P09	14/10/2021	Good	4	>70%	30-70%	
TW-S-PI-2_P09	26/05/2022	Good	4	>70%	30-70%	
TW-S-PI-2_P09	19/10/2022	Good	4	>70%	30-70%	
TW-S-PI-2_P09	25/05/2023	Good	4	>70%	30-70%	
TW-S-PI-2_P09	29/09/2023	Good	4	>70%	30-70%	
TW-S-PI-2_P09	24/05/2024	Good	4	>70%	30-70%	Recent dead banksia saplings young trees in site and background. Dead jarrah sapling in back of site.,
TW-S-PI-2_P09	11/10/2024	Good	3	>70%	30-70%	Recent dead banksia saplings young trees in site and background. Dead jarrah sapling in back of site. 24sp dead Af, Ba, Em sapling other trees 4.pic 1796.,
TW-S-PI-2_P09	23/05/2025	Good	3	>70%	30-70%	Recent dead banksia saplings young trees in site and background. Dead jarrah sapling in back of site. 24sp dead Af, Ba, Em sapling other trees 4.pic 1796.,A25, now new stress in canopy, but Relictual stress evident in shrubs eg sty rac, 30%
TW-S-PI-2_P09	30/09/2025	Good	3	>70%	30-70%	Trees very thin still, but no signs of further decline.
TW-S-PI-2_P09	26/05/2026	Good	3	>70%	30-70%	Trees still very thin 3 rating. Pic 7989
TW-S-PI-2_P10	31/07/2020	Good		10-30%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-2_P10	19/10/2022		4	10-30%	30-70%	Possible impacts from pc. But old impact site. ,
TW-S-PI-2_P10	25/05/2023		4	10-30%	30-70%	Possible impacts from pc. But old impact site. ,
TW-S-PI-2_P10	29/09/2023	Very good	4	10-30%	30-70%	Possible impacts from pc. But old impact site. ,
TW-S-PI-2_P10	24/05/2024	Very good	4	10-30%	30-70%	Possible impacts from pc. But old impact site. Some scattered stressed banksia and Xylomelon, . Lots of Hibbertia hypericoides and Orthrosanthus laxus abnormal stressed dead in due to drought. ,
TW-S-PI-2_P10	11/10/2024	Very good	4	10-30%	30-70%	Possible impacts from pc. But old impact site. Some scattered stressed banksia and Xylomelon, . Lots of Hibbertia hypericoides and Orthrosanthus laxus abnormal stressed dead in due to drought. 24Sp Hh all 4. Other trees 4, Ol 5,
TW-S-PI-2_P10	23/05/2025	Very good	4	10-30%	30-70%	Possible impacts from pc. But old impact site. Some scattered stressed banksia and Xylomelon, . Lots of Hibbertia hypericoides and Orthrosanthus laxus abnormal stressed dead in due to drought. 24Sp Hh all 4. Other trees 4, Ol 5,A25 Hh 60% residual stress evident.
TW-S-PI-2_P10	30/09/2025	Very good	4	10-30%	30-70%	S25 Hh is looking healthy, but dead parts of previous affected plants will not recover. Pic 3:57
TW-S-PI-2_P10	26/05/2026	Very good	4	2-10%	30-70%	Site looks healthy
TW-S-PI-2_P11	19/10/2022	Good	4	10-30%	30-70%	
TW-S-PI-2_P11	25/05/2023	Good	4	10-30%	30-70%	
TW-S-PI-2_P11	29/09/2023	Good	4	10-30%	30-70%	
TW-S-PI-2_P11	24/05/2024	Good	4	10-30%	30-70%	Trees mostly healthy. Hibbertia hypericoides very stressed. ,
TW-S-PI-2_P11	11/10/2024	Good	4	10-30%	30-70%	Trees mostly healthy. Hibbertia hypericoides very stressed. 24Sp Hh 4 else healthy.,
TW-S-PI-2_P11	23/05/2025	Good	4	10-30%	30-70%	Trees mostly healthy. Hibbertia hypericoides very stressed. 24Sp Hh 4 else healthy.,25A Em saplings stressed. Hh 40%
TW-S-PI-2_P11	30/09/2025	Good	3	10-30%	30-70%	Em trees have declined to 3 and other trees thin. Pic 3:53, other plants ok, no further decline evident
TW-S-PI-2_P11	26/05/2026	Good	3	10-30%	30-70%	Em saplings in site still at 3. Pic 10:47
TW-S-PI-2_P12	19/10/2022	Very good	5	10-30%	30-70%	
TW-S-PI-2_P12	25/05/2023	Very good	5	10-30%	30-70%	
TW-S-PI-2_P12	29/09/2023	Very good	5	10-30%	30-70%	
TW-S-PI-2_P12	24/05/2024	Very good	4	10-30%	30-70%	Scattered very stressed dead banksia and agonis mostly upslope from monitoring point. Pic 169. Almost all Lots Hibbertia hypericoides very stressed. Pic 170.Tuart ok.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-2_P12	11/10/2024	Very good	3	10-30%	30-70%	Scattered very stressed dead banksia and agonis mostly upslope from monitoring point. Pic 169. Almost all Lots Hibbertia hypericoides very stressed. Pic 170. Tuart ok. 24sp 4 x ba dead. Hh 20 - 40% pic 1774.,
TW-S-PI-2_P12	23/05/2025	Very good	3	10-30%	30-70%	Scattered very stressed dead banksia and agonis mostly upslope from monitoring point. Pic 169. Almost all Lots Hibbertia hypericoides very stressed. Pic 170. Tuart ok. 24sp 4 x ba dead. Hh 20 - 40% pic 1774., A25 residual stress evident. Other trees plz
TW-S-PI-2_P12	30/09/2025	Very good	3	10-30%	30-70%	Good monitoring pic ? Relictual stress evident in Ba, Hh. Parts of these plants are dead and will likely not fully recover.
TW-S-PI-2_P12	26/05/2026	Very good	4	10-30%	30-70%	Remaining Ba, Xo. trees ok at a 4. So site given a 4Hh showing signs of relictual stress.
TW-S-PI-2_P13	19/10/2022	Degraded	5	>70%	30-70%	Veg structure impacted , low scope for regeneration ,
TW-S-PI-2_P13	25/05/2023	Degraded	5	>70%	30-70%	Veg structure impacted , low scope for regeneration ,
TW-S-PI-2_P13	29/09/2023	Degraded	5	>70%	30-70%	Veg structure impacted , low scope for regeneration ,
TW-S-PI-2_P13	24/05/2024	Degraded	4	>70%	30-70%	Veg structure impacted , low scope for regeneration. Almost all Agonis dead or very stressed to north pic 171. but to south ok pic 172.,
TW-S-PI-2_P13	11/10/2024	Degraded	3	>70%	30-70%	Veg structure impacted , low scope for regeneration. Almost all Agonis dead or very stressed to north pic 171. but to south ok pic 172. 24sp Af 10-20%. Eg ok. pic 1776.,
TW-S-PI-2_P13	23/05/2025	Degraded	3	>70%	30-70%	Veg structure impacted , low scope for regeneration. Almost all Agonis dead or very stressed to north pic 171. but to south ok pic 172. 24sp Af 10-20%. Eg ok. pic 1776., Per 24 sp
TW-S-PI-2_P13	30/09/2025	Degraded	3	>70%	30-70%	Possibly a 4 stress rating now with some recovery in tuart trees. Site stable
TW-S-PI-2_P13	26/05/2026	Degraded	4	>70%	30-70%	Most Af and Eg have recovered to a 4 due to some good epicormic growth. One large Af almost dead though. 10:47
TW-S-PI-2_P14	19/10/2022	Good	5	30-70%	30-70%	
TW-S-PI-2_P14	25/05/2023	Good	5	30-70%	30-70%	
TW-S-PI-2_P14	29/09/2023	Good	5	30-70%	30-70%	
TW-S-PI-2_P14	24/05/2024	Good	4	30-70%	30-70%	Most agonis, hibbertia hyp very stressed in site. Tuart ok.,
TW-S-PI-2_P14	11/10/2024	Good	4	>70%	30-70%	Most agonis, hibbertia hyp very stressed in site. Tuart ok. 24sp weeds^. Af 3-4, Eg 4. Hh 4, Lasiopetalum 2. Pic 1778.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-2_P14	23/05/2025	Good	4	>70%	30-70%	Most agonis, hibbertia hyp very stressed in site. Tuart ok. 24sp weeds^. Af 3-4, Eg 4. Hh 4, Lasiopetalum 2. Pic 1778.,No new stress evident just relictual stress
TW-S-PI-2_P14	30/09/2025	Good	4	>70%	30-70%	Per A25, lasiopetalum healthy.pic 3:40
TW-S-PI-2_P14	26/05/2026	Good	4	>70%	30-70%	Site appears healthy
TW-S-PI-2_P15	19/10/2022	Very good	4	30-70%	>70%	Weeds are small, competing with smaller herbs. ,
TW-S-PI-2_P15	25/05/2023	Very good	4	30-70%	>70%	Few autumn weeds.,
TW-S-PI-2_P15	29/09/2023	Very good	4	30-70%	>70%	Few autumn weeds./ lots of spring annual weeds ,
TW-S-PI-2_P15	24/05/2024	Very good	4	30-70%	>70%	Few autumn weeds./ lots of spring annual weeds 2024 no autumn weeds, some agonis and hibbertia stressed on site. Relatively ok.,
TW-S-PI-2_P15	11/10/2024	Very good	4	30-70%	>70%	Few autumn weeds./ lots of spring annual weeds 2024 no autumn weeds, some agonis and hibbertia stressed on site. Relatively ok. 24 Trees 4 , Hh 4, Sty rac dead pic 1779.,
TW-S-PI-2_P15	23/05/2025	Very good	4	30-70%	>70%	Few autumn weeds./ lots of spring annual weeds 2024 no autumn weeds, some agonis and hibbertia stressed on site. Relatively ok. 24 Trees 4 , Hh 4, Sty rac dead pic 1779.,A25 Hh 70 Af 50 . Fresh Ba death. Relictual stress.
TW-S-PI-2_P15	30/09/2025	Very good	4	30-70%	>70%	Site stable no further decline evident. Background af still very stressed. Pic 3:37
TW-S-PI-2_P15	26/05/2026	Very good	4	10-30%	>70%	Site stable, Af still very thin, marginally 4
TW-S-PI-2_P16	19/10/2022	Very good	5	30-70%	>70%	
TW-S-PI-2_P16	25/05/2023	Very good	5	30-70%	>70%	All Macrozamia riedlei plants are stressed with outer leaves dead.,
TW-S-PI-2_P16	29/09/2023	Very good	5	30-70%	>70%	All Macrozamia reidleii plants are stressed with outer leaves dead/ this a natural part of their growth cycle.,
TW-S-PI-2_P16	24/05/2024	Very good	4	30-70%	>70%	All Macrozamia reidleii plants are stressed with outer leaves dead/ this a natural part of their cycle 2024 Macrozamia healthy. Most 75% of agonis dead / stressed. Most Styphelia propinqua and hibbertia hyp dead stressed.pic 173,
TW-S-PI-2_P16	11/10/2024	Very good	2	30-70%	>70%	2024 Macrozamia healthy. Most 75% of agonis dead / stressed. Most Styphelia propinqua and hibbertia hyp dead stressed.pic 17. 24sp all Af 2 pic 1780, Hh and Sty rac 3-4, ,
TW-S-PI-2_P16	23/05/2025	Very good	2	30-70%	>70%	2024 Macrozamia healthy. Most 75% of agonis dead / stressed. Most Styphelia propinqua and hibbertia hyp dead stressed.pic 17. 24sp all Af 2 pic 1780, Hh and Sty rac 3-4, ,A25 Af with

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
						epicormic growth still 2. Other shrubs per Sp24
TW-S-PI-2_P16	30/09/2025	Very good	2	30-70%	>70%	Most stress affected site , most af 2 or 3, pic 3:28, 3:29
TW-S-PI-2_P16	26/05/2026	Very good	3	30-70%	>70%	Many of the stressed Af are recuperating from the bottom up. The canopy is still dead though. Nearby tuarts are almost dead. Overall it is a 3 now. Pic 10:32
TW-S-PI-2_P17	19/10/2022	Good	4	30-70%	30-70%	
TW-S-PI-2_P17	25/05/2023	Good	4	30-70%	30-70%	Outer leaves of Macrozamia dead, but plants look healthy ,
TW-S-PI-2_P17	29/09/2023	Good	4	30-70%	30-70%	Outer leaves of Macrozamia dead, but plants look healthy. Lots of Ursinia invading the site.,
TW-S-PI-2_P17	24/05/2024	Good	4	30-70%	30-70%	Some scattered stressed agonis. Priority listed lasiopetalum stressed but surviving. Pic 174,
TW-S-PI-2_P17	11/10/2024	Good	4	30-70%	30-70%	Some scattered stressed agonis. Priority listed lasiopetalum stressed but surviving. Pic 174. 24sp Af 4, Las pet ok 4 pic 1781.,
TW-S-PI-2_P17	23/05/2025	Good	4	30-70%	30-70%	Some scattered stressed agonis. Priority listed lasiopetalum stressed but surviving. Pic 174. 24sp Af 4, Las pet ok 4 pic 1781.,A25 stress 4 . Eg in background fresh dead?
TW-S-PI-2_P17	30/09/2025	Good	4	30-70%	30-70%	Site stable.
TW-S-PI-2_P17	26/05/2026	Good	4	30-70%	30-70%	Banksia attenuata has died, no longer locally dominant, else site is stable.
TW-S-PI-2_P18	19/10/2022	Very good	4	30-70%	>70%	
TW-S-PI-2_P18	25/05/2023	Very good	4	30-70%	>70%	
TW-S-PI-2_P18	29/09/2023	Very good	4	30-70%	>70%	
TW-S-PI-2_P18	24/05/2024	Very good	4	30-70%	>70%	Some scattered stressed Banksia attenuata in background. Large marri tree has died suddenly due to wood borer, cockie predation and drought stress pic 176, 177, 178,
TW-S-PI-2_P18	11/10/2024	Very good	4	>70%	>70%	Some scattered stressed Banksia attenuata in background. Large marri tree has died suddenly due to wood borer, cockie predation and drought stress pic 176, 177, 178. 24sp trees and shrubs 4. Scattered dead sty rac. Dead marri pic 1782,
TW-S-PI-2_P18	23/05/2025	Very good	4	>70%	>70%	Some scattered stressed Banksia attenuata in background. Large marri tree has died suddenly due to wood borer, cockie predation and drought stress pic 176, 177, 178. 24sp trees and shrubs 4. Scattered dead sty rac. Dead marri pic 1782,A24 relictual stress evident. Af coppicing but about 50%

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-2_P18	30/09/2025	Very good	4	>70%	>70%	No further decline evident.
TW-S-PI-2_P18	26/05/2026	Very good	4	30-70%	>70%	Site stable , low germination of weeds due to lack of rain.
TW-S-PI-2_P19	19/10/2022	Good	5	30-70%	30-70%	Dieing Agonis flexuosa north of site,
TW-S-PI-2_P19	25/05/2023	Good	5	30-70%	30-70%	Dying Agonis flexuosa north of site, half is dead. ,
TW-S-PI-2_P19	29/09/2023	Good	5	30-70%	30-70%	Dieing Agonis flexuosa north of site, half is dead. Still dead ,
TW-S-PI-2_P19	24/05/2024	Good	4	30-70%	30-70%	Dieing Agonis flexuosa north of site, half is dead. Still dead. Scattered stressed agonis in site and background ,
TW-S-PI-2_P19	11/10/2024	Good	4	30-70%	>70%	Dieing Agonis flexuosa north of site, half is dead. Still dead. Scattered stressed agonis in site and background . 24sp Af 4. Site ok.,
TW-S-PI-2_P19	23/05/2025	Good	4	30-70%	>70%	Dieing Agonis flexuosa north of site, half is dead. Still dead. Scattered stressed agonis in site and background . 24sp Af 4. Site ok.,A25 per Sp24
TW-S-PI-2_P19	30/09/2025	Good	4	30-70%	>70%	Site stable no further deterioration.
TW-S-PI-2_P19	26/05/2026	Good	4	30-70%	>70%	Site stable2
TW-S-PI-2_P20	19/10/2022	Degraded	5	>70%	30-70%	
TW-S-PI-2_P20	25/05/2023	Degraded	5	>70%	30-70%	
TW-S-PI-2_P20	29/09/2023	Degraded	5	>70%	30-70%	Three large tuarts on the background are dead. Large Marri to the east is very stressed. P2524,
TW-S-PI-2_P20	24/05/2024	Degraded	5	>70%	30-70%	Three large tuarts on the background are dead. Large Marri to the east is very stressed. P2524 and is now dead pic 180. A few scattered dead banksia attenuata in background vegetation. Site relatively ok.,
TW-S-PI-2_P20	11/10/2024	Degraded	5	>70%	30-70%	Three large tuarts on the background are dead. Large Marri to the east is very stressed. P2524 and is now dead pic 180. A few scattered dead banksia attenuata in background vegetation. Site relatively ok. 24sp local veg 5.,
TW-S-PI-2_P20	23/05/2025	Degraded	5	>70%	30-70%	Three large tuarts on the background are dead. Large Marri to the east is very stressed. P2524 and is now dead pic 180. A few scattered dead banksia attenuata in background vegetation. Site relatively ok. 24sp local veg 5.,A25 per Sp24
TW-S-PI-2_P20	30/09/2025	Degraded	4	>70%	30-70%	Af Trees have thinned so now a 4
TW-S-PI-2_P20	26/05/2026	Degraded	4	>70%	30-70%	Per s25
TW-S-PI-2_T1E	19/11/2019	Very good				
TW-S-PI-2_T1E	26/05/2020	Very good		<2%	30-70%	
TW-S-PI-2_T1E	26/10/2020	Very good	5	2-10%	30-70%	
TW-S-PI-2_T1E	14/10/2021	Very good	5	10-30%	30-70%	
TW-S-PI-2_T1E	26/05/2022	Very good	5	10-30%	30-70%	
TW-S-PI-2_T1E	19/10/2022	Very good	5	10-30%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-2_T1E	25/05/2023	Very good	5	10-30%	30-70%	
TW-S-PI-2_T1E	10/10/2023	Very good	5	10-30%	30-70%	
TW-S-PI-2_T1E	24/05/2024	Very good	4	10-30%	30-70%	
TW-S-PI-2_T1E	10/11/2024	Very good	4	10-30%	30-70%	
TW-S-PI-2_T1E	23/05/2025	Very good	4	10-30%	30-70%	,a25 per Sp25
TW-S-PI-2_T1W	19/11/2019	Good				
TW-S-PI-2_T1W	26/05/2020	Very good		<2%	30-70%	
TW-S-PI-2_T1W	26/10/2020	Very good	5	2-10%	30-70%	
TW-S-PI-2_T1W	14/10/2021	Very good	5	2-10%	30-70%	
TW-S-PI-2_T1W	26/05/2022	Very good	5	2-10%	30-70%	
TW-S-PI-2_T1W	19/10/2022	Very good	5	2-10%	30-70%	
TW-S-PI-2_T1W	25/05/2023	Very good	5	2-10%	30-70%	
TW-S-PI-2_T1W	10/10/2023	Very good	5	2-10%	30-70%	
TW-S-PI-2_T1W	24/05/2024	Very good	4	2-10%	30-70%	
TW-S-PI-2_T1W	10/11/2024	Very good	3	2-10%	30-70%	
TW-S-PI-2_T1W	23/05/2025	Very good	3	2-10%	30-70%	,A25 per Sp24, maybe some recovery in Ba. Af in foreground almost dead.
TW-S-PI-3_P01	26/05/2020	Degraded		30-70%	10-30%	
TW-S-PI-3_P01	26/05/2020	Degraded		30-70%	10-30%	
TW-S-PI-3_P01	28/10/2020	Degraded	5	30-70%	10-30%	
TW-S-PI-3_P01	28/10/2020	Degraded	5	30-70%	10-30%	
TW-S-PI-3_P01	14/10/2021	Degraded	5	30-70%	10-30%	
TW-S-PI-3_P01	14/10/2021	Degraded	5	30-70%	10-30%	
TW-S-PI-3_P01	26/05/2022	Degraded	5	30-70%	10-30%	
TW-S-PI-3_P01	26/05/2022	Degraded	5	30-70%	10-30%	
TW-S-PI-3_P01	19/10/2022	Degraded	5	30-70%	10-30%	
TW-S-PI-3_P01	19/10/2022	Degraded	5	30-70%	10-30%	
TW-S-PI-3_P01	22/05/2023	Degraded	5	30-70%	10-30%	A new fence is being constructed on opposite side of the fire access track. ,
TW-S-PI-3_P01	22/05/2023	Degraded	5	30-70%	10-30%	A new fence is being constructed on opposite side of the fire access track. ,
TW-S-PI-3_P01	29/09/2023	Degraded	5	30-70%	10-30%	A new fence is being constructed on opposite side of the fire access track. Access track is disturbed as part of borrh works,
TW-S-PI-3_P01	29/09/2023	Degraded	5	30-70%	10-30%	A new fence is being constructed on opposite side of the fire access track. Access track is disturbed as part of borrh works,
TW-S-PI-3_P01	25/05/2024	Degraded	5	30-70%	10-30%	Trees have thinned but still retain greater than 80% foliage. Note Borr works close to site pic 194.,
TW-S-PI-3_P01	25/05/2024	Degraded	5	30-70%	10-30%	Trees have thinned but still retain greater than 80% foliage. Note Borr works close to site pic 194.,
TW-S-PI-3_P01	25/10/2024	Degraded	5	30-70%	10-30%	Trees have thinned but still retain greater than 80% foliage. Note Borr works close to site pic 194.2024 sp no litter stable - stopping bay shut ,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-3_P01	25/10/2024	Degraded	5	30-70%	10-30%	Trees have thinned but still retain greater than 80% foliage. Note Borr works close to site pic 194.2024 sp no litter stable - stopping bay shut ,
TW-S-PI-3_P01	23/05/2025	Degraded	5	>70%	10-30%	Trees have thinned but still retain greater than 80% foliage. Note Borr works close to site pic 194.2024 sp no litter stable - stopping bay shut ,A25 per sp24
TW-S-PI-3_P01	23/05/2025	Degraded	5	>70%	10-30%	Trees have thinned but still retain greater than 80% foliage. Note Borr works close to site pic 194.2024 sp no litter stable - stopping bay shut ,A25 per sp24
TW-S-PI-3_P01	30/09/2025	Degraded	4	>70%	10-30%	Trees have less than 80% foliage.
TW-S-PI-3_P02	26/05/2020	Degraded		30-70%	30-70%	
TW-S-PI-3_P02	26/05/2020	Degraded		30-70%	30-70%	
TW-S-PI-3_P02	28/10/2020	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	28/10/2020	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	14/10/2021	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	14/10/2021	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	26/05/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	26/05/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	19/10/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	19/10/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	22/05/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	22/05/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	29/09/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	29/09/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P02	25/05/2024	Degraded	4	30-70%	30-70%	Jacksonia furcellata stressed, Agonis tree very stressed in the background. ,
TW-S-PI-3_P02	25/05/2024	Degraded	4	30-70%	30-70%	Jacksonia furcellata stressed, Agonis tree very stressed in the background. ,
TW-S-PI-3_P02	25/10/2024	Degraded	4	30-70%	30-70%	Jacksonia furcellata stressed, Agonis tree very stressed in the background. 2024 sp Agonis still alive 50% health. Stable ,
TW-S-PI-3_P02	25/10/2024	Degraded	4	30-70%	30-70%	Jacksonia furcellata stressed, Agonis tree very stressed in the background. 2024 sp Agonis still alive 50% health. Stable ,
TW-S-PI-3_P02	23/05/2025	Degraded	4	30-70%	30-70%	Jacksonia furcellata stressed, Agonis tree very stressed in the background. 2024 sp Agonis still alive 50% health. Stable ,A25 stable.
TW-S-PI-3_P02	23/05/2025	Degraded	4	30-70%	30-70%	Jacksonia furcellata stressed, Agonis tree very stressed in the background. 2024 sp Agonis still alive 50% health. Stable ,A25 stable.
TW-S-PI-3_P02	30/09/2025	Degraded	4	30-70%	>70%	No further decline.
TW-S-PI-3_P02	25/05/2026	Degraded	4	>70%	>70%	Ba, Af, Xo stable but weeds increasing grasses , oxalis etc.

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-3_P03	26/05/2020	Degraded		30-70%	30-70%	
TW-S-PI-3_P03	26/05/2020	Degraded		30-70%	30-70%	
TW-S-PI-3_P03	28/10/2020	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	28/10/2020	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	14/10/2021	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	14/10/2021	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	26/05/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	26/05/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	19/10/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	19/10/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	22/05/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	22/05/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	29/09/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	29/09/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P03	25/05/2024	Degraded	5	30-70%	30-70%	Jacksonia furcellata has died possibly due to drought.,
TW-S-PI-3_P03	25/05/2024	Degraded	5	30-70%	30-70%	Jacksonia furcellata has died possibly due to drought.,
TW-S-PI-3_P03	25/10/2024	Degraded	5	30-70%	30-70%	Jacksonia furcellata has died possibly due to drought.2024 sp stable and healthy. Picnic bay shut ,
TW-S-PI-3_P03	25/10/2024	Degraded	5	30-70%	30-70%	Jacksonia furcellata has died possibly due to drought.2024 sp stable and healthy. Picnic bay shut ,
TW-S-PI-3_P03	23/05/2025	Degraded	4	30-70%	30-70%	Jacksonia furcellata has died possibly due to drought.2024 sp stable and healthy. Picnic bay shut ,A25 Af & Em have reduced canopy Af 60%, Em 75. Weeds increased.
TW-S-PI-3_P03	23/05/2025	Degraded	4	30-70%	30-70%	Jacksonia furcellata has died possibly due to drought.2024 sp stable and healthy. Picnic bay shut ,A25 Af & Em have reduced canopy Af 60%, Em 75. Weeds increased.
TW-S-PI-3_P03	30/09/2025	Degraded	4	>70%	>70%	No further increase in stress, but increased weeds. Not from BOrr. Adjacent reveg site. Pic 4:11
TW-S-PI-3_P03	25/05/2026	Degraded	4	>70%	>70%	Site appears stable with no further increase in stress. Weeds between fence and reveg site could be controlled, but unlikely to cause increase at already maxed monitoring point.pic 7982
TW-S-PI-3_P04	26/05/2020	Degraded		30-70%	30-70%	
TW-S-PI-3_P04	26/05/2020	Degraded		30-70%	30-70%	
TW-S-PI-3_P04	28/10/2020	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	28/10/2020	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	14/10/2021	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	14/10/2021	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	26/05/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	26/05/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	19/10/2022	Degraded	5	30-70%	30-70%	

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-3_P04	19/10/2022	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	22/05/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	22/05/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	29/09/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	29/09/2023	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	25/05/2024	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	25/05/2024	Degraded	5	30-70%	30-70%	
TW-S-PI-3_P04	25/10/2024	Degraded	5	30-70%	30-70%	2024 so stable and healthy. BORR building material still on site ,
TW-S-PI-3_P04	25/10/2024	Degraded	5	30-70%	30-70%	2024 so stable and healthy. BORR building material still on site ,
TW-S-PI-3_P04	23/05/2025	Degraded	5	>70%	30-70%	2024 so stable and healthy. BORR building material still on site ,A25 site is stable.
TW-S-PI-3_P04	23/05/2025	Degraded	5	>70%	30-70%	2024 so stable and healthy. BORR building material still on site ,A25 site is stable.
TW-S-PI-3_P04	30/09/2025	Degraded	5	>70%	30-70%	Site stable
TW-S-PI-3_P04	25/05/2026	Degraded	5	>70%	30-70%	Site stable.
TW-S-PI-4_P01	26/05/2020	Degraded		30-70%	30-70%	Historical grazing,
TW-S-PI-4_P01	26/05/2020	Degraded		30-70%	30-70%	Historical grazing,
TW-S-PI-4_P01	19/10/2020	Degraded	5	>70%	30-70%	Historical grazing,
TW-S-PI-4_P01	19/10/2020	Degraded	5	>70%	30-70%	Historical grazing,
TW-S-PI-4_P01	13/10/2021	Degraded	5	>70%	<2%	Farmland ,
TW-S-PI-4_P01	13/10/2021	Degraded	5	>70%	<2%	Farmland ,
TW-S-PI-4_P01	25/05/2022	Degraded	5	>70%	<2%	Farmland ,
TW-S-PI-4_P01	25/05/2022	Degraded	5	>70%	<2%	Farmland ,
TW-S-PI-4_P01	19/10/2022	Degraded	5	>70%	30-70%	Farmland ,
TW-S-PI-4_P01	19/10/2022	Degraded	5	>70%	30-70%	Farmland ,
TW-S-PI-4_P01	22/05/2023	Degraded	5	>70%	30-70%	Farmland ,
TW-S-PI-4_P01	22/05/2023	Degraded	5	>70%	30-70%	Farmland ,
TW-S-PI-4_P01	29/09/2023	Degraded	5	>70%	30-70%	Farmland ,
TW-S-PI-4_P01	29/09/2023	Degraded	5	>70%	30-70%	Farmland ,
TW-S-PI-4_P01	25/05/2024	Degraded	5	>70%	30-70%	Farmland ,
TW-S-PI-4_P01	25/05/2024	Degraded	5	>70%	30-70%	Farmland ,
TW-S-PI-4_P01	31/10/2024	Degraded	5	>70%	30-70%	Farmland 2024sp stable no change ,
TW-S-PI-4_P01	31/10/2024	Degraded	5	>70%	30-70%	Farmland 2024sp stable no change ,
TW-S-PI-4_P01	23/05/2025	Degraded	5	>70%	30-70%	Farmland 2024sp stable no change ,A25 appears grazing has gone, so weed cover from grass has increased.
TW-S-PI-4_P01	23/05/2025	Degraded	5	>70%	30-70%	Farmland 2024sp stable no change ,A25 appears grazing has gone, so weed cover from grass has increased.
TW-S-PI-4_P01	30/09/2025	Degraded	5	>70%	30-70%	Site stable.
TW-S-PI-4_P01	25/05/2026	Degraded	5	>70%	30-70%	Site is stable.
TW-S-PI-4_P02	26/05/2020	Degraded		2-10%	30-70%	Historic clearing,
TW-S-PI-4_P02	26/05/2020	Degraded		2-10%	30-70%	Historic clearing,
TW-S-PI-4_P02	09/09/2020	Degraded		2-10%	30-70%	Historic clearing,
TW-S-PI-4_P02	09/09/2020	Degraded		2-10%	30-70%	Historic clearing,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-4_P02	13/10/2021	Degraded	5	>70%	30-70%	Farm site.,
TW-S-PI-4_P02	13/10/2021	Degraded	5	>70%	30-70%	Farm site.,
TW-S-PI-4_P02	25/05/2022	Degraded	5	>70%	30-70%	Farm site. Photomon needs updating ,
TW-S-PI-4_P02	25/05/2022	Degraded	5	>70%	30-70%	Farm site. Photomon needs updating ,
TW-S-PI-4_P02	19/10/2022	Degraded	5	>70%	30-70%	Farm site. Photomon needs updating , updated with new guide photo ,
TW-S-PI-4_P02	19/10/2022	Degraded	5	>70%	30-70%	Farm site. Photomon needs updating , updated with new guide photo ,
TW-S-PI-4_P02	22/05/2023	Degraded	5	>70%	30-70%	Fire access track recently graded,
TW-S-PI-4_P02	22/05/2023	Degraded	5	>70%	30-70%	Fire access track recently graded,
TW-S-PI-4_P02	29/09/2023	Degraded	5	>70%	30-70%	
TW-S-PI-4_P02	29/09/2023	Degraded	5	>70%	30-70%	
TW-S-PI-4_P02	25/05/2024	Degraded	5	>70%	30-70%	Site stable, Tuart healthy,
TW-S-PI-4_P02	25/05/2024	Degraded	5	>70%	30-70%	Site stable, Tuart healthy,
TW-S-PI-4_P02	31/10/2024	Degraded	5	>70%	30-70%	Site stable, Tuart healthy 2024sp stable no change ,
TW-S-PI-4_P02	31/10/2024	Degraded	5	>70%	30-70%	Site stable, Tuart healthy 2024sp stable no change ,
TW-S-PI-4_P02	20/05/2025	Degraded	5	>70%	30-70%	Site stable, Tuart healthy 2024sp stable no change ,A25 stable
TW-S-PI-4_P02	20/05/2025	Degraded	5	>70%	30-70%	Site stable, Tuart healthy 2024sp stable no change ,A25 stable
TW-S-PI-4_P02	30/09/2025	Degraded	5	>70%	30-70%	Site stable
TW-S-PI-4_P02	25/05/2026	Degraded	5	>70%	30-70%	Site is stable
TW-S-PI-4_P03	19/10/2020	Degraded	5	>70%	30-70%	Historically cleared,
TW-S-PI-4_P03	19/10/2020	Degraded	5	>70%	30-70%	Historically cleared,
TW-S-PI-4_P03	13/10/2021	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory ,
TW-S-PI-4_P03	13/10/2021	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory ,
TW-S-PI-4_P03	25/05/2022	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory ,
TW-S-PI-4_P03	25/05/2022	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory ,
TW-S-PI-4_P03	19/10/2022	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory ,
TW-S-PI-4_P03	19/10/2022	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory ,
TW-S-PI-4_P03	22/05/2023	Degraded	5	>70%	30-70%	Note Dichopogon capillipes is common in understory ,
TW-S-PI-4_P03	22/05/2023	Degraded	5	>70%	30-70%	Note Dichopogon capillipes is common in understory ,
TW-S-PI-4_P03	29/09/2023	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory ,
TW-S-PI-4_P03	29/09/2023	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory ,
TW-S-PI-4_P03	25/05/2024	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory , some stress in the Jarrah at south of site. Overall ok.,
TW-S-PI-4_P03	25/05/2024	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory , some stress in the Jarrah at south of site. Overall ok.,

Current photocode	date	condition	Crown extent density	Weed cover	Native cover	Comments
TW-S-PI-4_P03	31/10/2024	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory , some stress in the Jarrah at south of site. Overall ok. 2024 sp no stress stable ,
TW-S-PI-4_P03	31/10/2024	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory , some stress in the Jarrah at south of site. Overall ok. 2024 sp no stress stable ,
TW-S-PI-4_P03	23/05/2025	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory , some stress in the Jarrah at south of site. Overall ok. 2024 sp no stress stable ,A25 site is stable
TW-S-PI-4_P03	23/05/2025	Degraded	5	>70%	30-70%	Note dichopogon capillipes is common in understory , some stress in the Jarrah at south of site. Overall ok. 2024 sp no stress stable ,A25 site is stable
TW-S-PI-4_P03	30/09/2025	Degraded	5	>70%	30-70%	Site stable
TW-S-PI-4_P03	25/05/2026	Degraded	5	>70%	30-70%	Site is stable

Appendix 5. Vegetation condition scale (EPA, 2016).

Vegetation Condition	South West and Interzone Botanical Provinces
Pristine	Pristine or nearly so, no obvious signs of disturbance or damage caused by human activities since European settlement.
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species Damage to trees caused by fire, the presence of non-aggressive weeds and occasional vehicle tracks.
Very Good	Vegetation structure altered, obvious signs of disturbance. Disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. Disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds at high density, partial clearing, dieback and grazing.
Completely Degraded	The structure of the vegetation is no longer intact, and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees and shrubs.

Appendix 5. Recording sheet template – developed into Fulcrum app for data collection.

BORR Drainage Monitoring Program. Quarterly visual inspection Sheet -

Site name	Date	Field personnel

Flooding/inundation

If flooding/inundation is present, complete a plant health assessment using the scale included below. The plant health assessment should be conducted over the portion of the TEC/PEC that is flooded/inundated.

Considering the degree of impact (or lack of impact), make a recommendation for when the subsequent assessment should occur (quarterly as is the standard or within a shorter timeframe)

Standing water present (Y/N)	
Estimated area of standing water (m ²)	
% of TEC / PEC occurrence impacted by standing water	
TEC/PEC vegetation affected (Y/N) If yes, describe effect.	
List main species affected	
Photograph and waypoint taken (Y)	
Plant health assessment conducted (Y/N)	

Erosion

If TEC/PEC vegetation is impacted by active erosion, complete a plant health assessment using the scale included below. The plant health assessment should be conducted over the portion of the TEC/PEC suspected to be impacted.

Active erosion present (Y/N)	
Estimated area of active erosion (m ²)	
Photograph and waypoint taken (Y)	
TEC/PEC vegetation affected (Y/N) If yes, describe effect. Complete plant health assessment if required.	
Plant health assessment conducted (Y/N)	

Drying

If a drying effect is suspected, complete a plant health assessment using the scale included below. The plant health assessment should be conducted over the portion of the TEC/PEC suspected to be impacted.

Considering the degree of impact (or lack of impact), make a recommendation for when the subsequent assessment should occur (quarterly as is the standard or within a shorter timeframe)

Drying effect present or suspected (Y/N)	
% of TEC / PEC occurrence impacted	
Describe effect	
List main species affected	
Photograph and waypoint taken (Y)	
Plant health assessment conducted (Y/N)	

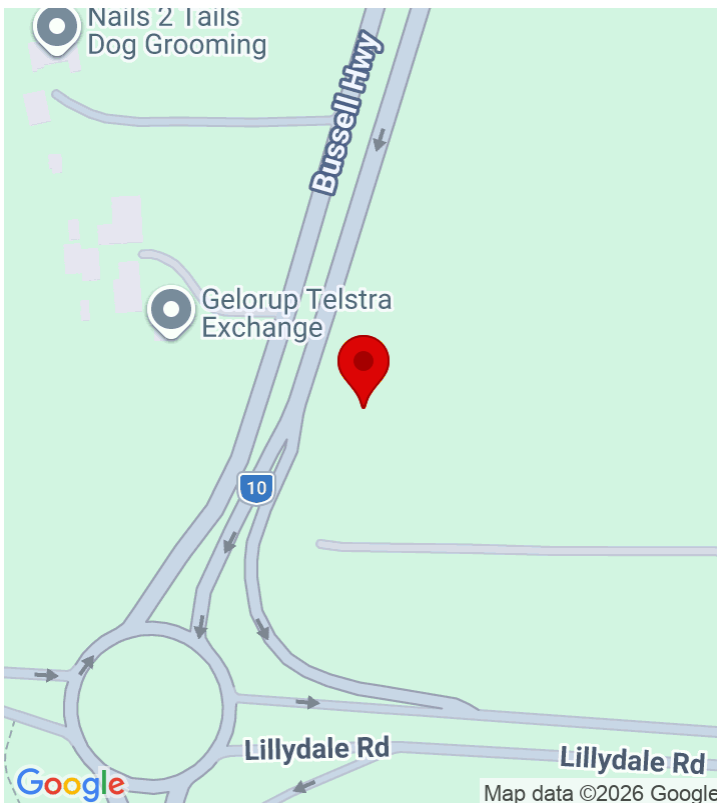
Appendix 6. TW-S-PI-2 site report (autumn 2026) for this site showing recovery from drying effect in 2024.

2026 BORR drainage_autumn

25_05_2026 autumn

TW-S-PI-2_D1 (a24)

5/27/2026, 12:26:16 AM UTC



CREATED

🕒 5/24/2026, 3:09:08 AM UTC

👤 by Debbie Brace

UPDATED

🕒 5/27/2026, 12:26:16 AM UTC

👤 by Ecoedge Environmental

LOCATION

📍 -33.384715, 115.644753

Site name	TW-S-PI-2
Point name	TW-S-PI-2_D1 (a24)
Recorder	Debbie Brace
Date	May 27, 2026
Issue Y/N	No
Issue	
Cause of erosion	
Type of erosion	
Extent of erosion	
Cause of Inundation	
Extent of inundation	
Percentage Extent of TEC PEC affected	1-10% western edge only
Species affected	
Plant health assessment	

Photos

Photo direction	
General comments	No new issue
Estimated level of impact	2-10%

APPENDIX K: M4.7 Environmental Performance Report – Black Cockatoos

Environmental Performance Report – Black Cockatoo Artificial Hollows

**Bunbury Outer Ring Road –
Southern Approval
Ministerial Statement 1191**

*Keeping
WA Moving*

2025-2026 Reporting Period

Document Control

Report Compilation & Review	Position	Document Revision	Date
Author:	Environment Officer	Draft A	27 July 2026
Reviewer:	Principal Environment Officer - CRSP	Draft B	17 Aug 2026
Approver:	Principal Environment Officer	Rev 0	19 Aug 2026

Executive Summary

This Environmental Performance Report (EPR) covers the period from 31 May 2025 to 31 May 2026, fulfilling Condition 4-7 of Ministerial Statement 1191 (MS 1191) for the Bunbury Outer Ring Road (BORR) Southern Section project. Under MS 1191 Condition 4-4, Main Roads Western Australia was required to replace impacted Black Cockatoo nesting hollows on a 1:1 basis. Construction clearing to date impacted three suitable nesting trees. Consequently, three artificial nesting hollows (ANHs) were installed at the designated Ducane Offset Site (Hollows D01–D03). No clearing of Black Cockatoo habitat occurred during the 2025–2026 reporting period.

Ducane Offset Site Monitoring Results (MS 1191)

Two monitoring and maintenance inspections were conducted in October and December 2025 by Australian Black Cockatoo Specialists in accordance with DPaW (2015) guidelines.

- All four ANHs and their mounting hardware remained in good condition, requiring no maintenance or structural repairs.
- Zero breeding attempts, prospecting, or chewing activities by Black Cockatoos were recorded at the Ducane site during the 2025 breeding season.
- Non-target native species (Wood Ducks) utilised two hollows (D01 and D03).

Regional Offset Program & Strategic Outcomes (EPBC 2019/8543)

Under Commonwealth approval (EPBC 2019/8543) for the Proposal, Main Roads targeted hollow placement in known breeding areas within four Wheatbelt reserves (Badgebup, Kwobrup, Elphin, and Highbury State Forest) comprising 51 ANHs, as well as seven repaired natural hollows.

- The regional offset sites recorded 24 active Black Cockatoo nesting attempts during the 2025–2026 season, resulting in 20 successfully fledged nestlings. Elphin Nature Reserve achieved a 100% occupancy rate.
- Over the past two reporting periods, the regional offset hollows supported 37 total nesting attempts (averaging >0.7 attempts per hollow), compared to zero Black Cockatoo attempts at the Ducane Offset site.

Contents

Executive Summary..... 3

1 INTRODUCTION5

1.1 Background..... 5

1.2 Purpose and Scope..... 6

2 Environmental Performance Report7

2.1 Clearing metrics in relation to Terrestrial Fauna..... 7

2.2 Hollow Monitoring Program..... 7

2.3 Maintenance Requirements..... 8

3 Regional Offset Program Performance - Commonwealth EPBC Approval Outcomes9

3.1 Regional ANH Program Success (2025–2026)..... 9

3.2 Environmental Outcomes between MS 1191 and EPBC 2019/8543 9

Appendix A. Report: Environmental Performance Reports – October and December 2025 (Australian Black Cockatoo Specialist, 2025)11

1 INTRODUCTION

1.1 Background

The Commissioner of Main Roads Western Australia (Main Roads) has been granted conditional approval by the Minister for Environment for the Bunbury Outer Ring Road (BORR) Southern Section (the Proposal) under Part IV Division 2 (section 45) of the *Environmental Protection Act 1986*. The Proposal is subject to the implementation conditions of Ministerial Statement 1191 (MS 1191) which was issued on 31 May 2022 (Minister for Environment, 2022).

In its Report and Recommendations for the Proposal (EPA Report 1714, October 2021), the EPA noted that in relation to Terrestrial Fauna, the key values likely to be impacted by the proposal are the local and regional population levels of conservation significant terrestrial fauna. The residual impacts to these values are predominately from clearing of breeding and foraging habitat, habitat fragmentation and changes to hydrological regimes of aquatic habitat.

Condition 4 of MS 1191, specifically relates to the following fauna taxa (collectively referred to as Black Cockatoos):

- Carnaby's Cockatoo *Zanda latirostris*
- Baudin's Cockatoo *Zanda baudinii*
- Forest Red-tailed Black Cockatoo *Calyptorhynchus banksia naso*

To mitigate and manage risks to Black Cockatoos, Condition 4 of MS 1191 states:

Condition 4-1

The proponent shall implement the proposal to achieve the following environmental outcomes:

(1) clear no more than:

- (a) 60.9 ha of habitat for western ringtail possum;*
- (b) 60.9 ha of black cockatoo foraging and breeding habitat;*
- (c) 1088 black cockatoo potential nesting trees, and 11 trees with suitable hollows;*
- (d) 39.2 ha of habitat for south-western brush-tailed phascogale; and*
- (e) 5.5 ha of habitat for black-stripe minnow.*

Condition 4-2

Prior to ground-disturbing activities the proponent shall undertake the following actions:

- (1) within seven (7) days prior to clearing, using a qualified and licensed terrestrial fauna spotter with experience in surveying for black cockatoos, inspect all potential nesting trees hollows within the development envelope to determine if any hollows are being used for nesting by black cockatoos;*
- (2) if any hollows are in use by black cockatoos, the proponent shall not disturb or clear the nesting tree, or vegetation within a ten (10) metre radius of the nesting tree, until after the cockatoos have naturally completed nesting (young have fledged and dispersed) and an appropriately qualified terrestrial fauna spotter has verified that the hollow(s) are no longer being used by black cockatoos; and*

- (3) *within seven (7) days prior to clearing (or if staged, prior to each stage) implement pre-clearance protocols to minimise impacts to terrestrial fauna.*

Condition 4-3

During the construction of the proposal the proponent shall:

- (1) ensure the presence of appropriately qualified fauna spotters during clearing activities;*
- (2) not clear or cause any project attributable indirect impacts to the clearing exclusion areas as defined in Figure 1; and*
- (3) ensure foraging species for black cockatoos are not planted within ten (10) metres of the road.*

Condition 4-4

The proponent must install one artificial black cockatoo nesting hollow for each suitable hollow that cannot be avoided in the 11 trees with suitable hollows identified in condition 4-1(1)(c).

Condition 4-5

Each artificial black cockatoo nesting hollow required by condition 4-4 must be installed prior to commencement of the next black cockatoo breeding season following clearing.

Condition 4-6

The artificial black cockatoo nest hollow(s) required by condition 4-4 of must:

- (1) be installed at the locations identified by DBCA within property locations as set out and described in Table 1 of condition 9-2.*
- (2) be designed and placed in accordance with the specifications details in How to design and place artificial hollows for Carnaby's cockatoo (DPAW Fauna Notes 2015), or any subsequent DBCA revision of this guideline; and*
- (3) be monitored and maintained in accordance with the specifications detailed in How to monitor and maintain artificial hollows for Carnaby's cockatoo (DPAW Fauna Notes 2015), or any subsequent DBCA revision of this guideline, for a period of at least ten (10) years.*

1.2 Purpose and Scope

The purpose of this Environmental Performance Report (EPR) is to address the compliance of the Proposal with condition 4-7 set out in Ministerial Statement 1191 (MS1191).

Condition 4-7 of MS 1191 requires an annual EPR to be submitted to the Chief Executive Officer (CEO) of DWER as part of the Compliance Assessment Report (CAR).

Condition 4-7

The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, for a period of at least ten (10) years, that shall:

- (1) *outline the monitoring and maintenance that was undertaken in accordance with the specifications detailed in How to Monitor and maintain artificial hollows for Carnaby's cockatoo (DPAW Fauna Notes 2015), or any subsequent DBCA revision of this guideline;*
- (2) *outline the results of the monitoring and maintenance undertaken.*

This EPR has been produced in accordance with condition M4-7 and incorporates a 12-month audit period from 31 May 2025 to 31 May 2026. This is the fourth EPR for M4-7 to be submitted under Ministerial Statement 1191.

A monitoring report was prepared by Australian Black Cockatoo Specialists (2025) for the three ANHs located at the nearby Ducane offset site (Appendix A).

2 Environmental Performance Report

2.1 Clearing metrics in relation to Terrestrial Fauna

Construction of the Proposal commenced on 1 August 2022.

No additional clearing or disturbance of Black Cockatoo habitat occurred during the 2025 – 2026 reporting period.

Clearing and disturbance of Black Cockatoo habitat during the previous reporting period is summarised in Table 1, noting no clearing of Black Cockatoo habitat occurred during the 2025-2026 reporting period

Table 1. Ground disturbance and clearing in relation to Black Cockatoo habitat and South-western brush-tailed phascogale habitat).

Environmental Aspect	Area / Quantity specified in Ministerial Statement 1191	Area / Quantity cleared during the 2022 -2023 reporting period	Area / Quantity cleared during the 2023 -2024 reporting period	Area / Quantity cleared during the 2024 -2025 reporting period	Total Area / Quantity cleared
Black Cockatoo Habitat	60.9 ha	24.39 ha	17.94 ha	0.19 ha	42.52 ha
No more than 1088 trees with a diameter at breast height of >500mm	1088 trees	397 ha	305 ha	0 trees	702 trees
No more than 11 trees with suitable nest hollows	11 trees	3 trees	0 trees	0 trees	3 trees

2.2 Hollow Monitoring Program

Under Condition 4-7 of MS 1191, Main Roads is required to submit an annual Environmental Performance Report (EPR) detailing the monitoring and maintenance of ANHs for a period of at least ten (10) years. During the construction of the Proposal, a total of three (3) trees containing suitable nesting hollows were impacted. In accordance with Condition 4-4 and Condition 4-6(1), replacement ANHs were required to be installed at locations identified by DBCA within the offset properties set out in Table 1 of Condition 9-2. Consequently, four ANHs were installed at the Ducane Offset Site

(Hollows D01–D04), noting only three had to be installed.

During the 2025–2026 reporting period, two monitoring and maintenance surveys of the Ducane hollows were conducted by Australian Black Cockatoo Specialists in October 2025 and December 2025. Surveys were undertaken in accordance with *How to Monitor and Maintain Artificial Hollows for Carnaby's Cockatoo* (DPaW Fauna Notes 2015) using pole-cameras and physical inspections to assess the structural integrity, hardware condition and fauna usage.

The results of the Ducane Site Monitoring was as follows:

- All four ANHs (D01–D04) and their mounting fixings remained in good structural condition with no maintenance or repairs required.
- No direct nesting attempts by Black Cockatoos were recorded at the Ducane site during the 2025 breeding season. Entryway cobwebs in D02 and D04 indicated minimal animal activity.
- Secondary use by non-target native species was recorded in D01 (Wood Duck down feathers) and D03 (Wood Duck down and a broken egg).

2.3 Maintenance Requirements

No maintenance was required for any of the four ANHs, with none of the hollows showing signs of use by Black Cockatoos.

3 Regional Offset Program Performance - Commonwealth EPBC Approval Outcomes

Although Condition 4-6(1) of MS 1191 prescribed that all required ANHs must be installed at sites located near the Proposal, the Commonwealth approval allowed the proponent to install hollows in areas where Black Cockatoos were known to breed.

Accordingly, rather than install them in areas where use was likely to be low, Main Roads located the remaining ANHs required by the Commonwealth approval on DBCA managed lands in areas that were known to support Black Cockatoo breeding. Fifty-one ANHs were installed within four wheatbelt reserves at Badgebup, Kwobrup, Elphin and Highbury State Forest.

In addition to the installation of ANHs, Australian Black Cockatoo Specialists and Main Roads also repaired several natural nest hollows that were no longer suitable for Black Cockatoo breeding.

3.1 Regional ANH Program Success (2025–2026)

Highlights of the wheatbelt site monitoring program that was required by EPBC 2019/8543 included:

- Record Breeding Numbers - across the four regional sites (comprising 51 ANHs and 7 repaired natural hollows), Black Cockatoo nesting attempts increased to 24 attempts (up from 15 in the previous season), culminating in 20 nestlings successfully fledging.
- Reserve Occupancy: Elphin Nature Reserve achieved a 100% occupancy rate across all available hollows, while Badgebup and Kwobrup recorded high rates of active nesting, chick banding, and heavy chewing/prospecting across an additional 17 hollows.

3.2 Environmental Outcomes between MS 1191 and EPBC 2019/8543

Targeted installation within known breeding areas delivers a significantly better environmental outcome compared to placing ANHs in non-breeding areas that are adjacent to the impact area. Table 1 summarises the 2025–2026 monitoring findings, comparing the activity levels observed at the Ducane Offset Site against the broader regional offset sites. While the four ANHs at Ducane recorded no breeding attempts, prospecting, or chewing activity by Carnaby's Cockatoos (beyond secondary use by non-target native Wood Ducks in hollows D01 and D03), the regional sites demonstrated significant success with 24 active nesting attempts and 18 additional hollows showing distinct signs of prospecting or chewing.

This builds on the 2024–2025 reporting period, which recorded 13 nesting attempts and 11 fledged nestlings. Across both reporting periods combined, the Commonwealth approval hollows have supported 37 nesting attempts (averaging over 0.7 attempts per hollow), whereas the state MS 1191 hollows at Ducane have not recorded any Black Cockatoo activity.

Table 2: Comparison of 2025–2026 Nesting Hollow Activity between the Ducane Offset Site (MS 1191) and Regional Offset Properties (EPBC 2019/8543)

Activity Category	Ducane Offset Site (4 ANHs)	Other Regional Sites (51 ANHs, 7 Natural)	Total Network (62 Hollows)
Nesting Attempts by Black Cockatoos	0	24	24
Prospecting (Female Flushed / At Hollow)	0	1	1
Chewing / Prospecting (Post or Hollow Wall)	0	17	17
Used by Non-Target Species	2	2	4
No Sign of Use by Black Cockatoos	4	13	17

Appendix A. Report: Environmental Performance Reports – October and December 2025 (Australian Black Cockatoo Specialist, 2025)



Australian Black Cockatoo Specialists

Report: First nesting survey of 55 artificial and seven natural hollows BORR Offset 2025



Main Roads
Western Australia

24 October 2025



Australian Black Cockatoo Specialists

CONTENTS

• INTRODUCTION	1
• INSPECTION METHOD	1
• RESULTS.....	1
• RECOMMENDED REPAIRS.....	2
• RECOMMENDATIONS/CONCLUSIONS.....	2
• CONTACT INFORMATION.....	2
• APPENDIX 1, 2 AND 3-5 ATTACHED SEPERATELY	4

All images source: Rick Dawson

INTRODUCTION

Australian Black Cockatoo Specialists (ABCS) are pleased to submit this report to the Department of Main Roads Western Australia (MRWA) regarding the inspection/nesting survey of 55 Artificial hollows (ANH) and seven natural hollows in Ducane, Badgebup, Kwobrup, Elphin Reserves and Highbury State Forest between Monday 20 and Wednesday 22 October December 2025.

INSPECTION METHOD

The objective of the survey was to establish if there has been Black Cockatoo 'prospecting' and/or nesting activity. The scope of this project included:

- undertaking a close visual inspection of all ANH's via camera pole and or ladder, any activity detected was then photographed.
- Inspect tree, fixings and hollow condition.
- Any Black Cockatoo nestlings older than 21days, will be photographed, leg banded, measured, weighed, aged (this will give us the date egg laid) and DNA taken, under licences from DPAW.
- Details of any use including non-target species was recorded.

All 55 artificial and seven natural hollows were inspected in accordance with protocols used by CSIRO and the Department of Biodiversity, Conservation and Attractions. The inside and above each artificial hollow were viewed using a pole camera and photographs taken of any Chewing detected, nesting activity or obstructions. A photograph was also taken from the ground using a 500mm lens of the sacrificial posting detailing any Chewing or signs of prospecting. Details of observations were recorded and are attached at Appendixes 3 to 5.

RESULTS

A total of 62 hollows (55 Artificial Nest Hollows [ANHs] and 7 natural hollows) were inspected during the first 2025 nesting survey. I am pleased to report 21 nesting attempts by Carnaby's Cockatoos have been recorded already this breeding season, with the possibility of more to come.

Table 1: Summary of Hollow Activity

Activity	ANH	NATURAL	TOTAL
Nesting attempts by CC's	16	5	21
Prospecting by CC'S (female flushed or at hollow)	1	0	1
Chewing (prospecting) on post or hollow wall by CC's	19	1	20
Used by non-target species	3	0	3
No sign of use by CC's	16	1	17
TOTAL	55	7	62

Currently, there are **19 active nesting attempts** (hollows containing viable eggs or nestlings) across the surveyed reserves. The **first fledging is expected from Elphin Reserve as early as 9 November 2025**.

Chewing and Prospecting Activity

Chipping by Carnaby's Cockatoos was observed in 19 additional ANH's, indicating a high level of prospecting activity, especially within the Elphin, Badgebup and Kwobrup reserves. Each hollow was assessed for chewing intensity using a 0–10 scale, with '0' indicating no chewing and '10' indicating that replacement of the hollow may be required.

Chewing activity was recorded on all ANHs surveyed in **Badgebup, Kwobrup, and Elphin** reserves. However, **no chewing or prospecting was observed in Highbury State Forest or Ducane**.

Non-Target Species and Other Observations

At the **Ducane Reserve and Highbury State Forest**, ANHs currently show no signs of use by Carnaby's Cockatoos. However:

- D01 contained Wood Duck down feathers at the base.
- D03 contained a small amount of Wood Duck down and a broken egg.
- D02 and D04 had cobwebs at the entry, suggesting no recent animal activity, likely indicating these hollows have not been accessed in the past year or more.
- BY46 has a small Skelton on the base most likely a bat.

Observations

Carnaby's Cockatoos were **heard briefly calling** in the east of **Highbury State Forest**, but no birds were observed.

A **pair of Forest Red-tailed Black Cockatoos** was observed flying over the **centre of Ducane Reserve**. Notably, **Marri fruits have mostly been depleted** in Ducane, while **Jarrah is currently in full bloom**, offering a seasonal foraging resource.

Nestling Fledging Projections

- The **first nestling is expected to fledge from Elphin Reserve around 9 November 2025**.
- Additional nestlings are expected to fledge across the Badgebup and Kwobrup reserves through late November to early January.

GPS Corrections

- **BY39**: GPS data is currently incorrect, see APPENDIX 5 for updated coordinates.
- **WO4**: Repaired in December 2024, see APPENDIX 4 for coordinates

REPAIRS

- No repairs are required at this stage, as the artificial hollows were only installed last year and the Wandoo post and chips are proving to be very durable.
- A **detailed list of required repairs** will be provided following the **second survey in December 2025**.

RECOMMENDATIONS

- That the **second nesting survey be conducted between 3–5 December 2025**, to allow for comprehensive data collection from all nestlings, enabling health assessments and ongoing monitoring.
- Continue observation of prospecting activity in reserves with lower nesting uptake (e.g., Ducane and Highbury) to determine long-term suitability.

CONCLUSIONS

These results—achieved in **less than two years**—demonstrate the effectiveness of artificial hollow installation and repairs to natural hollows in addressing the **critical shortage of suitable nesting sites** in the Wheatbelt region.

The increase to **21 nesting attempts** this season (up from 13 last season), and the potential for **over 20 fledglings**, represents a **significant conservation outcome** for Carnaby's Cockatoos in the wheatbelt. Of particular significance, **every artificial and repaired natural hollow in Elphin Nature Reserve** has hosted a nesting attempt this breeding season—an extraordinary result that underscores the immediate value of targeted habitat augmentation.

ACKNOWLEDGEMENTS

I extend my sincere thanks to **Main Roads Western Australia (MRWA)** and the **Department of Biodiversity, Conservation and Attractions (DBCA)** for their continued support in the installation of Artificial Nest Hollows and repair of natural hollows within the BORR offset areas. Your proactive investment is yielding measurable benefits for black cockatoo conservation and biodiversity outcomes in the Wheatbelt.

CONTACT INFORMATION

Contact Name: Rick Dawson
Position: Principal Consultant
Phone: 0448 170 670
Email: rickd@abcs.au



Rick Dawson
Director
Australian Black Cockatoo Specialist
24 October 2025

Appendix 1: DETAILS OF ANH OBSERVATIONS

Appendix 2: DETAILS OF PROCESSED NESTLINGS

Appendix 3: PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH D01 TO BY15. (Attached separately)

Appendix4: PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH BY16 TO Repair 3 Elphin. (Attached separately)

Appendix4: PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH BY37 TO ANH51 (Attached separately)

APPENDIX 1 –DETAILS OF ANH OBSERVATIONS(COLOUR CODE:NESTING ATTEMPT, PROSPECTING, CHEWING, NON-TARGET, NO USE)

Hollow#	Comments	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
<u>DUCANE</u>						
D01	No signs of nesting or inspection by Black Cockatoos. Duck at base of hollows	0	Nil	Good	Good	Nil
D02	No signs of nesting or inspection by Black Cockatoos. Cobwebs	0	Nil	Good	Good	Nil
D03	No signs of nesting or inspection by Black Cockatoos. Cobwebs at entry, duck down and one broken duck egg	0	Nil	Good	Good	Nil
D04	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
<u>BADGEBUP</u>						
BY01	Female CC Flushed 1 x 8-10day old CC nestling, second CC nestling dead (48hrs)	3	Nil	Good	Good	Nil
BY02	Chewing on post no signs of Breeding		Nil	Good	Good	Nil
BY03	Female CC flushed, One 13 to 15-day old CC nestling Chewing on post.	3	Nil	Good	Good	Nil
BY04	Female CC flushed, 2 x CC eggs, chewing on post	3	Nil	Good	Good	Nil
BY05	Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil
BY06	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY07	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

BY08	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY09	Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil
BY10	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY11	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY12	Female CC prospecting at hollow with Male, chewing on post no sign of Breeding	2	Nil	Good	Good	Nil
BY13	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY14	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY15	One Male 50-day old CC nestling. Leg banded	5	Nil	Good	Good	Nil
<u>KWOBRUP</u>						
BY16	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY17	Female CC flushed, One 4-5-day old CC nestling, and still incubating second egg, Chewing on post.	2	Nil	Good	Good	Nil
BY18	Female CC flushed, One 4-5-day old CC nestling, and still incubating second egg, Chewing on post.	5	Nil	Good	Good	Nil
BY19	Chewing on post no signs of Breeding	1	Nil	Good	Good	Nil

BY20	One Female CC nestling 35 days old. Second nestling dead (48 hours) Chewing on post	4	Nil	Good	Good	Nil
BY21	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY22	Heavy Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil
BY23	Chewing on post, no signs of Breeding	2	Nil	Good	Good	Nil
BY24	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY25	One predated CC Egg, heaving chewing on post	3	Nil	Good	Good	Nil
BY26	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY27	Female CC flushed, 1 x CC eggs, chewing on post	3	Nil	Good	Good	Nil
BY28	Female CC flushed, 2 x CC eggs, chewing on post	3	Nil	Good	Good	Nil
BY29	Minor chewing on post, no signs of Breeding	1	Nil	Good	Good	Nil
BY30	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
ELPHIN						
BY31	Female Carnabys, 59 days old CC, Chewing on post	5	Nil	Good	Good	Nil

BY32	Smashed CC egg in base of hollow	3	Nil	Good	Good	Nil
BY33	Female CC flushed, 2 x CC eggs, chewing on post	3	Nil	Good	Good	Nil
BY34	Male Carnabys,39 days old CC, Chewing on post	3	Nil	Good	Good	Nil
BY35	Male Carnabys,35 days old CC, Chewing on post	3	Nil	Good	Good	Nil
BY36	Male Carnabys,36 days old CC, Chewing on post	2	Nil	Good	Good	Nil
<u>HIGHBURY SE</u>						
BY37	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY38	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY39	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY40	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY41	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY42	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY42	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY44	No signs of nesting or inspection by Black Cockatoos, small amount of chipping on bark	1	Nil	Good	Good	Nil

BY45	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY46	No signs of nesting or inspection by Black Cockatoos, small Skelton half buried, most likely a bat	0	Nil	Good	Good	Nil
BY47	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY48	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY49	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY50	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY51	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

NATURALS REPAIRED

Hollow#	Comments	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
Badgebup 01	2 CC breast feathers on floor, Chewing in hollow no signs of Breeding	2	Nil	Good	N/A	Nil
Kwobrup 02	Heavy chewing hollow, 2 x CC nestlings 12-15 days old	5	Nil	Good	N/A	Nil
Kwobrup 03	No signs of nesting or inspection by Black Cockatoos.	0	40	Good	N/A	Hollow floor dropped need 40Lts woodchips
Elphin 01	Female Carnaby's, 37 days old, female flushed	2	Nil	Good	N/A	Nil

Elphin 02	Female Carnaby's 45 days old	2	Nil	Good	N/A	Nil
Elphin 03	Male Carnaby's 24 days old, female flushed heavy chewing on walls.	7	0	Dead stag	N/A	Nil
Elphin 04	Five-day old CC and egg being incubated, Chewing on post. Female flushed	5	0	Dead Stag	N/A	Camouflage tin to cover splits in side of hollow

APPENDIX 2. DETAILS OF PROCESSED NESTLINGS IN SEASON 2025 AS 22 OCTOBER 2025

Date	Nest No	Sex	Band No	FLW	Actual weight	Age days	DNA	Comments
21 Oct 2025	BY15	M	320-02295	230	620	50	3	Fledge from 17/11/2025
21 Oct 2025	BY20	F	320-02296	141	570	37	3	Fledge from 01/12/2025
22 Oct 2025	BY36	M	320-02297	136	440	36	0	Fledge from 02/12/2025
22 Oct 2025	BY35	M	320-02298	125	500	35	0	Fledge from 03/12/2025
22 Oct 2025	BY34	M	320-02299	150	540	39	0	Fledge from 29/11/2025
22 Oct 2025	WO2	F	320-02300	193	670	45	0	Fledge from 23/11/2025
22 Oct 2025	WO3	M?	320-02301	68	390	24	0	Fledge from 14/12/2025
22 Oct 2025	WO1	F	320-02302	137	530	37	0	Fledge from 01/12/2025
22 Oct 2025	BY34	F	320-02303	279	700	59	0	Fledge from 9/11/2025

APPENDIX 3 PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH D01 TO BY15 – Attached separately.

APPENDIX 4 PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH BY16 TO REPAIR 3 ELPHIN– Attached separately.

APPENDIX 5 PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH BY37 TO ANH51 (HIGHBURY)– Attached separately

Artificial Hollow D01



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
D01	No signs of nesting or inspection by Black Cockatoos. Duck at base of hollows	0	Nil	Good	Good	Nil

Artificial Hollow D02



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
D02	No signs of nesting or inspection by Black Cockatoos. Cobwebs	0	Nil	Good	Good	Nil

Artificial Hollow D03



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
D03	No signs of nesting or inspection by Black Cockatoos. Cobwebs at entry, duck down and one broken duck egg	0	Nil	Good	Good	Nil

Artificial Hollow D04



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
D04	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY01



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY01	Female CC Flushed 1 x 8-10day old CC nestling, second CC nestling dead (48hrs)	3	Nil	Good	Good	Nil

Artificial Hollow BY02



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY02	Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil

Artificial Hollow BY03



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY03	Female CC flushed, One 13 to 15-day old CC nestling Chewing on post.	3	Nil	Good	Good	Nil

Artificial Hollow BY04



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY04	Female CC flushed, 2 x CC eggs, chewing on post	3	Nil	Good	Good	Nil

Artificial Hollow BY05



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY05	Chewing on post no signs of Breeding. Faeces in bottom of hollow	3	Nil	Good	Good	Nil

Artificial Hollow BY06



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY06	Minor chewing on post, no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY07



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY07	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY08



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY08	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY09



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY09	Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil

Artificial Hollow BY10



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY10	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY11



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY11	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY12



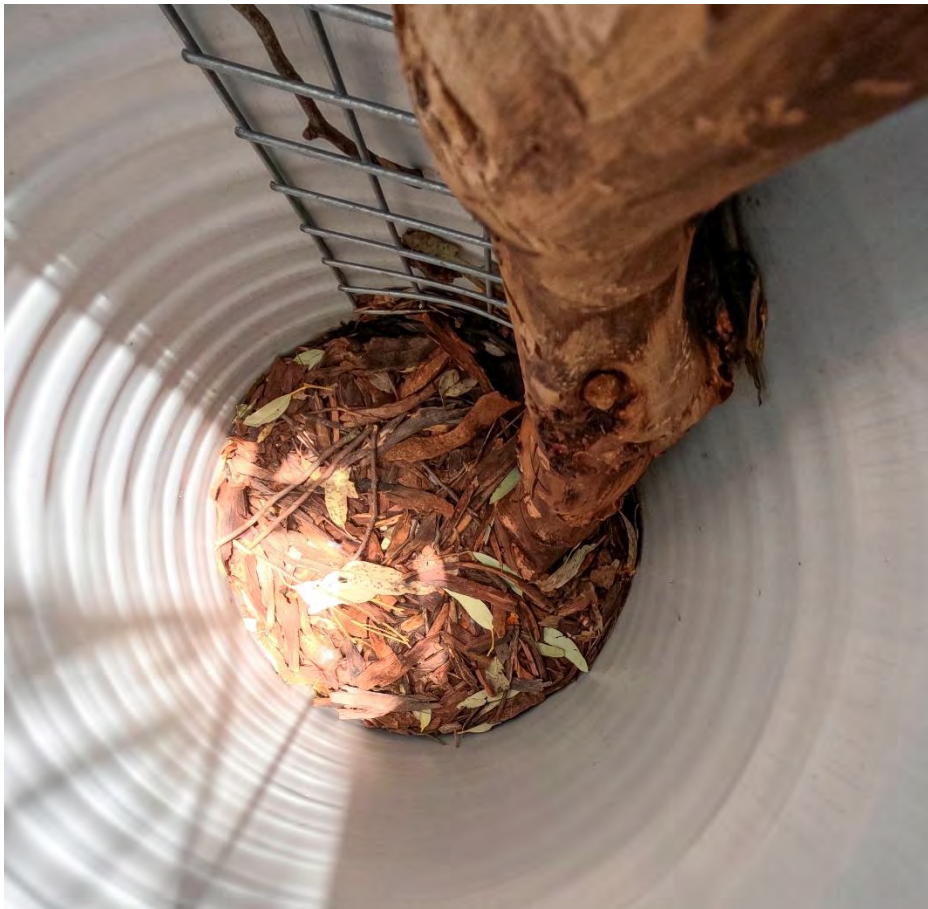
Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY12	Female CC prospecting at hollow with Male, chewing on post no sign of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY13



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY13	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY14



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY14	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY15



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY15	One Male 50-day old CC nestling. Leg banded	5	Nil	Good	Good	Nil

Artificial Hollow BY16



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY16	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY17



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY17	Female CC flushed, One 4-5-day old CC nestling, and still incubating second egg, Chewing on post.	2	Nil	Good	Good	Nil

Artificial Hollow BY18



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY18	Female CC flushed, One 4-5-day old CC nestling, and still incubating second egg, Chewing on post.	5	Nil	Good	Good	Nil

Artificial Hollow BY19



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY19	Chewing on post no signs of Breeding	1	Nil	Good	Good	Nil

Artificial Hollow BY20



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY20	One Female CC nestling 35 days old. Second nestling dead (48 hours) Chewing on post	4	Nil	Good	Good	Nil

Artificial Hollow BY21



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY21	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY22



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY22	Heavy Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil

Artificial Hollow BY23



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY23	Chewing on post, no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY24



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tre condition	Fixings and Hollow condition	Recommended repairs
BY24	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY25



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY25	One predated CC Egg, heaving chewing on post	3	Nil	Good	Good	Nil

Artificial Hollow BY26



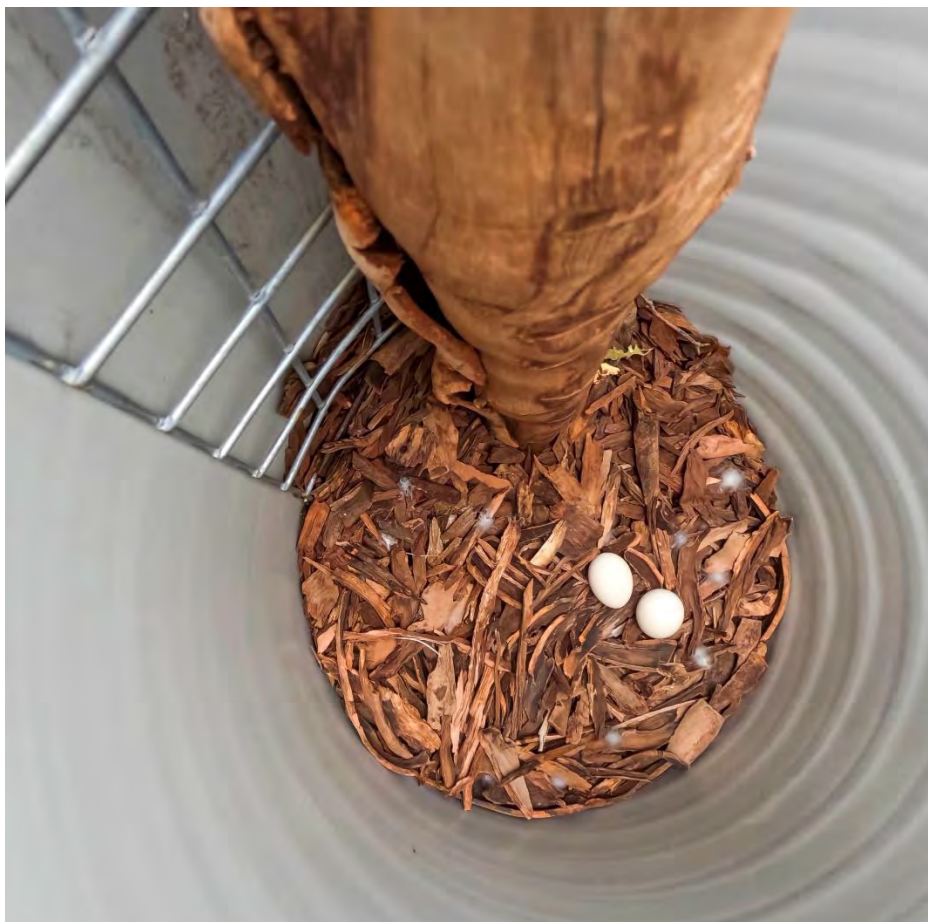
Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY26	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY27



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY27	Female CC flushed, 1 x CC eggs, chewing on post	3	Nil	Good	Good	Nil

Artificial Hollow BY28



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY28	Female CC flushed, 2 x CC eggs, chewing on post	3	Nil	Good	Good	Nil

Artificial Hollow BY29



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY29	Minor chewing on post, no signs of Breeding	1	Nil	Good	Good	Nil

Artificial Hollow BY30



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY30	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY31



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY31	Female Carnabys, 59 days old CC, Chewing on post	3	Nil	Good	Good	Nil

Artificial Hollow BY32



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY32	Smashed CC egg in base of hollow	3	Nil	Good	Good	Nil

Artificial Hollow BY33



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY33	Female CC flushed, 2 x CC eggs, chewing on post	5	Nil	Good	Good	Nil

Artificial Hollow BY34



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY34	Male Carnabys, 39 days old CC, Chewing on post	3	Nil	Good	Good	Nil

Artificial Hollow BY35



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY35	Male Carnabys,35 days old CC, Chewing on post	3	Nil	Good	Good	Nil

Artificial Hollow BY36



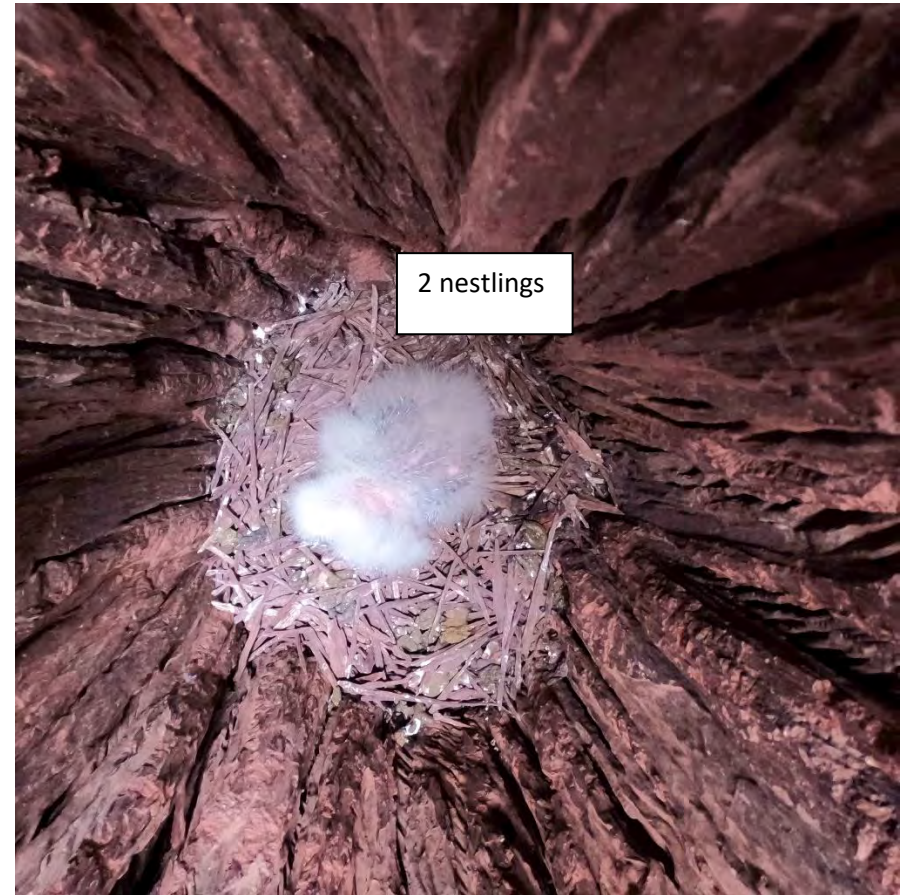
Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY36	Male Carnabys, 36 days old CC, Chewing on post	2	Nil	Good	Good	Nil

Natural Hollow Repair One (Badgebup



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
Badgebup 01	2 CC breast feathers on floor, Chewing in hollow no signs of Breeding	2	Nil	Good	N/A	Nil

Natural Hollow Repair Two (Kwobrup)



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
Kwobrup 02	Heavy chewing hollow, 2 x CC nestlings 12-15 days old	5	Nil	Good	N/A	Nil

Natural Hollow Repair Three (Kwobrup)



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
Kwobrup 03	No signs of nesting or inspection by Black Cockatoos.	0	40	Good	N/A	Hollow floor dropped need 40lts woodchips

Natural Hollow Repair One (Elphin)



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
Elphin 01	Female Carnaby's, 37 days old, female flushed	2	Nil	Good	N/A	Nil

Natural Hollow Repair Two (Elphin)



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
Elphin 02	Female Carnaby's 45 days old	2	Nil	Good	N/A	Nil

Natural Hollow Repair Three (Elphin)



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
Elphin 03	Male Carnaby's 24 days old, female flushed heavy chewing on walls.	5	0	Dead stag	N/A	Nil

Natural Hollow Repair Four (Elphin)



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
Elphin 04	Five-day old CC and egg being incubated, Chewing on post. Female flushed S 30.866422 E 116.6929754	5	0	Dead Stag	N/A	Camouflage tin to cover splits in side of hollow

Artificial Hollow BY37



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY37	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY38



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY38	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY39



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY39	No signs of nesting or inspection by Black Cockatoos. Corrected GPS Point S33.29549 E117.059733	0	Nil	Good	Good	Nil

Artificial Hollow BY40



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY40	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY41



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY41	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY42



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY42	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY43



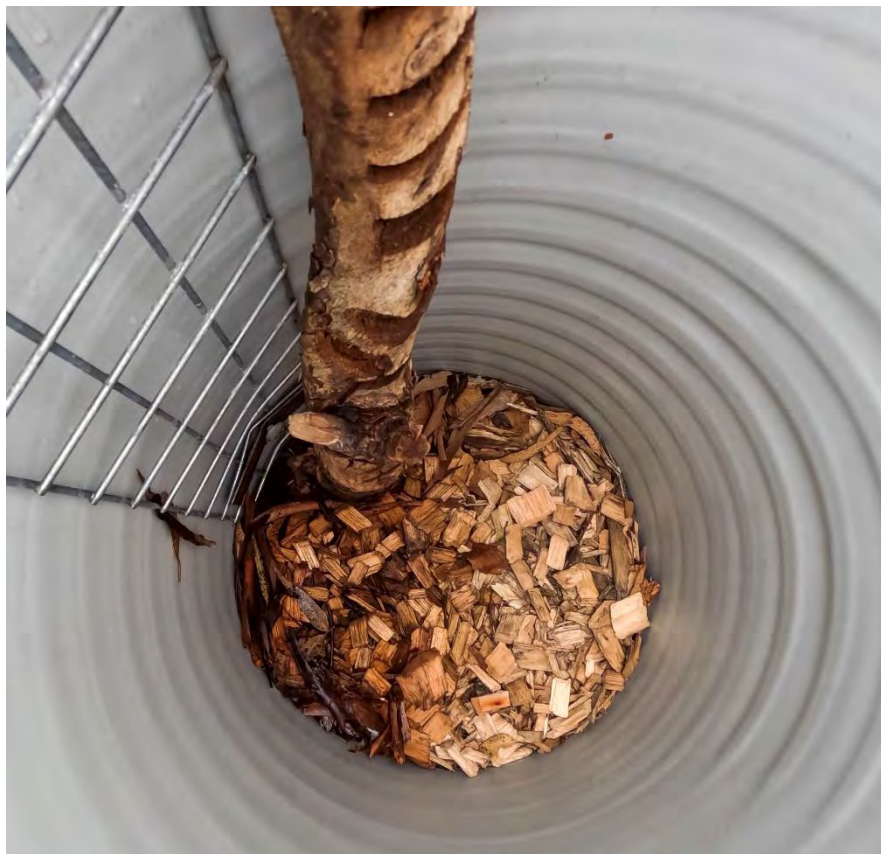
Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY43	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY44



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY44	No signs of nesting or inspection by Black Cockatoos, small amount of unidentifiable chipping on bark	1	Nil	Good	Good	Nil

Artificial Hollow BY45



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY45	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY46



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY46	No signs of nesting or inspection by Black Cockatoos, small Skelton half buried, most likely a bat	0	Nil	Good	Good	Nil

Artificial Hollow BY47



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY47	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY48



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY48	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY49



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY49	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY50



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY50	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY51



Hollow No	Comments	Chipping score 0-10	Wood Chips	Tree condition	Fixings and Hollow condition	Recommended repairs
BY49	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

OFFICIAL



Australian Black Cockatoo Specialists

Report: Second nesting survey of 55 artificial and seven natural hollows BORR Offset 2025

Main Roads
Western Australia

09 December 2025





Australian Black Cockatoo Specialists

CONTENTS

• INTRODUCTION	1
• INSPECTION METHOD	1
• RESULTS.....	1
• RECOMMENDED REPAIRS.....	2
• RECOMMENDATIONS/CONCLUSIONS.....	2
• CONTACT INFORMATION.....	2
• APPENDIX 1, 2 AND 3-5 ATTACHED SEPERATELY	4

All images source: Rick Dawson

INTRODUCTION

Australian Black Cockatoo Specialists (ABCS) are pleased to submit this report to the Department of Main Roads Western Australia (MRWA) regarding the inspection/nesting survey of 55 Artificial hollows (ANH) and seven natural hollows in Ducane, Badgebup, Kwobrup, Elphin Reserves and Highbury State Forest between Wednesday 3rd to Friday 5 December 2025.

INSPECTION METHOD

The objective of the survey was to establish if there has been Black Cockatoo 'prospecting' and/or nesting activity. The scope of this project included:

- undertaking a close visual inspection of all ANH's via camera pole and or ladder, any activity detected was then photographed.
- Inspect tree, fixings and hollow condition.
- Any Black Cockatoo nestlings older than 21days, will be photographed, leg banded, measured, weighed, aged (this will give us the date egg laid) and DNA taken, under licences from DPAW.
- Details of any use including non-target species was recorded.

All 55 artificial and seven natural hollows were inspected in accordance with protocols used by CSIRO and the Department of Biodiversity, Conservation and Attractions. The inside and above each artificial hollow were viewed using a pole camera and photographs taken of any Chewing detected, nesting activity or obstructions. A photograph was also taken from the ground using a 500mm lens of the sacrificial posting detailing any Chewing or signs of prospecting. Details of observations were recorded and are attached at Appendixes 3 to 5.

RESULTS

A total of 62 hollows (55 Artificial Nest Hollows [ANHs] and 7 natural hollows) were inspected during the second 2025 nesting survey. I am pleased to report 20 Carnaby's Cockatoos nestlings are likely to fledge from 24 attempts have been recorded this breeding season, with the possibility of a few more to come.

Table 1: Summary of Hollow Activity

Activity	ANH	NATURAL	TOTAL
Nesting attempts by CC's	18	6	24
Prospecting by CC'S (female flushed or at hollow)	1	0	1
Chewing (prospecting) on post or hollow wall by CC's	17	0	17
Used by non-target species	3	1	4
No sign of use by CC's	16	0	17
TOTAL	55	7	62

Currently, there are **13 active nesting attempts** (hollows containing viable eggs or nestlings) across the surveyed reserves. With six nestlings already fledged.

Chewing and Prospecting Activity

Chipping by Carnaby's Cockatoos was observed in 17 additional ANH's, indicating a high level of prospecting activity, especially within the Elphin, Badgebup and Kwobrup reserves. Each hollow was assessed for chewing intensity using a 0–10 scale, with '0' indicating no chewing and '10' indicating that replacement of the hollow may be required.

Chewing activity was recorded on all ANHs surveyed in **Badgebup, Kwobrup, and Elphin** reserves. However, **no chewing or prospecting was observed in Highbury State Forest or Ducane.**

Non-Target Species and Other Observations

At the **Ducane Reserve and Highbury State Forest**, ANHs currently show no signs of use by Carnaby's Cockatoos. However:

- D01 contained Wood Duck down feathers at the base.
- D03 contained a small amount of Wood Duck down and a broken egg.
- D02 and D04 had cobwebs at the entry, suggesting no recent animal activity, likely indicating these hollows have not been accessed in the past year or more.
- BY46 has a small Skelton on the base most likely a bat.
- Kowbrup 03 had a dead Regent Parrot

REPAIRS

- No repairs are required at this stage, as the artificial hollows were only installed last year and the Wandoo post and chips are proving to be very durable.
- Kowbrup 04 wood benefit from placing tin over the cracks, which will be done in October 2026 if not in use.

RECOMMENDATIONS

- That the 2026 nesting surveys are done again in October and December, to allow for comprehensive data collection from all nestlings, enabling health assessments and ongoing monitoring.
- Continue observation of prospecting activity in reserves with lower nesting uptake (e.g., Ducane and Highbury) to determine long-term suitability.

CONCLUSIONS

These outstanding results—achieved in **less than two years**—demonstrate the effectiveness of artificial hollow installation and repairs to natural hollows in addressing the **critical shortage of suitable nesting sites** in the Wheatbelt region.

The increase to **24 nesting attempts** this season (up from 15 last season), and the potential for **over 20 fledglings**, represents a **significant conservation outcome** for Carnaby's Cockatoos in the wheatbelt. Of particular significance, **every artificial and repaired natural hollow in Elphin Nature Reserve** has hosted a nesting attempt this breeding season—an extraordinary result that underscores the immediate value of targeted habitat augmentation.

ACKNOWLEDGEMENTS

I extend my sincere thanks to **Main Roads Western Australia (MRWA)** and the **Department of Biodiversity, Conservation and Attractions (DBCA)** for their continued support in the installation of Artificial Nest Hollows and repair of natural hollows within the BORR offset areas. Your proactive investment is yielding measurable benefits for black cockatoo conservation and biodiversity outcomes in the Wheatbelt.

CONTACT INFORMATION

Contact Name: Rick Dawson
Position: Principal Consultant
Phone: 0448 170 670
Email: rickd@abcs.au



Rick Dawson
Director
Australian Black Cockatoo Specialist
09 December 2025

Appendix 1: DETAILS OF ANH OBSERVATIONS

Appendix 2: DETAILS OF PROCESSED NESTLINGS

Appendix 3: PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH D01 TO BY15. (Attached separately)

Appendix4: PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH BY16 TO Repair 3 Elphin. (Attached separately)

Appendix5: PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH BY37 TO ANH51 (Attached separately)

OFFICIAL

APPENDIX 1 –DETAILS OF ANH OBSERVATIONS(COLOUR CODE:NESTING ATTEMPT, PROSPECTING, CHEWING, NON-TARGET, NO USE)

Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
DUCANE							
D01	No signs of nesting or inspection by Black Cockatoos. Duck at base of hollows	No signs of nesting or inspection by Black Cockatoos. Duck feathers at base of hollows	0	Nil	Good	Good	Nil
D02	No signs of nesting or inspection by Black Cockatoos. Cobwebs	No signs of nesting or inspection by Black Cockatoos. Cobwebs	0	Nil	Good	Good	Nil
D03	No signs of nesting or inspection by Black Cockatoos. Cobwebs at entry, duck down and one broken duck egg	No signs of nesting or inspection by Black Cockatoos. Cobwebs at entry, duck down and one broken duck egg	0	Nil	Good	Good	Nil
D04	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BADGEBUP							
BY01	Female CC Flushed 1 x 8-10day old CC nestling, second CC nestling dead (48hrs)	One 58-day old female CC nestling	3	Nil	Good	Good	Nil
BY02	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY03	Female CC flushed, One 13 to 15-day old CC nestling Chewing on post.	One 64-day old female CC nestling	3	Nil	Good	Good	Nil
BY04	Female CC flushed, 2 x CC eggs, chewing on post	One 47-day old female CC nestling	3	Nil	Good	Good	Nil
BY05	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil
BY06	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

OFFICIAL

BY07	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY08	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY09	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil
BY10	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY11	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY12	Female CC prospecting at hollow with Male, chewing on post no sign of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY13	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY14	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY15	One Male 50 day old CC nestling. Leg banded	Nestling Fledged, heavy pooh load on floor	5	Nil	Good	Good	Nil
<u>KWOBRUP</u>							
BY16	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil
BY17	Female CC flushed, One 4-5-day old CC nestling, and still incubating second egg, Chewing on post.	One 47-day old male CC nestling	2	Nil	Good	Good	Nil
BY18	Female CC flushed, One 4-5-day old CC nestling, and still incubating second egg, Chewing on post.	One 50-day old male CC nestling	5	Nil	Good	Good	Nil

OFFICIAL

BY19	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	1	Nil	Good	Good	Nil
BY20	One Female CC nestling 35 days old. Second nestling dead (48 hours) Chewing on post	Nestling Fledged, heavy poo load on floor	4	Nil	Good	Good	Nil
BY21	Chewing on post no signs of Breeding	One 8-10-day old CC nestling	2	Nil	Good	Good	Nil
BY22	Heavy Chewing on post no signs of Breeding	Female flushed, One 4-day old CC nestling and egg being incubated	4	Nil	Good	Good	Nil
BY23	Chewing on post, no signs of Breeding	Chewing on post, no signs of Breeding	2	Nil	Good	Good	Nil
BY24	Chewing on post no signs of Breeding	Chewing on post, no signs of Breeding	2	Nil	Good	Good	Nil
BY25	One predated CC Egg, heaving chewing on post	Chewing on post, no signs of second Breeding attempt	3	Nil	Good	Good	Nil
BY26	Chewing on post no signs of Breeding	Chewing on post, no signs of Breeding	3	Nil	Good	Good	Nil
BY27	Female CC flushed, 1 x CC eggs, chewing on post	One 25-day old female CC nestling	3	Nil	Good	Good	Nil
BY28	Female CC flushed, 2 x CC eggs, chewing on post	One 31-day old male and one 29- day old female CC nestling	3	Nil	Good	Good	Nil
BY29	Minor chewing on post, no signs of Breeding	Chewing on post, no signs of Breeding	1	Nil	Good	Good	Nil
BY30	Chewing on post no signs of Breeding	Chewing on post, no signs of Breeding	2	Nil	Good	Good	Nil
ELPHIN							

OFFICIAL

BY31	Female Carnabys,59 days old CC, Chewing on post	Fledged	5	Nil	Good	Good	Nil
BY32	Smashed CC egg in base of hollow	No sign of relay	3	Nil	Good	Good	Nil
BY33	Female CC flushed, 2 x CC eggs, chewing on post	Failure	3	Nil	Good	Good	Nil
BY34	Male Carnabys,39 days old CC, Chewing on post	Fledged	3	Nil	Good	Good	Nil
BY35	Male Carnabys,35 days old CC, Chewing on post	Fledged	3	Nil	Good	Good	Nil
BY36	Male Carnabys,36 days old CC, Chewing on post	Fledged	2	Nil	Good	Good	Nil
<u>HIGHBURY SF</u>							
Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY37	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY38	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY39	No signs of nesting or inspection by Black Cockatoos Corrected GPS Point S33.29549 E117.059733	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY40	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY41	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

OFFICIAL

BY42	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY42	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY44	No signs of nesting or inspection by Black Cockatoos, small amount of chipping on bark	No signs of nesting or inspection by Black Cockatoos	1	Nil	Good	Good	Nil
BY45	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY46	No signs of nesting or inspection by Black Cockatoos, small Skelton half buried, most likely a bat	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY47	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY48	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY49	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY50	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil
BY51	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

NATURALS REPAIRED

Hollow#	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
---------	-----------------------	-----------------------	------------------	-------------------	-------------------	---------	----------------------

OFFICIAL

Badgebup 01	2 CC breast feathers on floor, Chewing in hollow no signs of Breeding	Female flushed, one CC egg	2	Nil	Good	N/A	Nil
Kwobrup 02	Heavy chewing hollow, 2 x CC nestlings 12-15 days old	One 64-day old female and one 58-day old male CC nestling	5	Nil	Good	N/A	Nil
Kwobrup 03	No signs of nesting or inspection by Black Cockatoos.	One dead regent parrot in base of hollow. Hollow is deep however even floor	0	nil	Good	N/A	NIL
Elphin 01	Female Carnaby's, 37 days old, female flushed	Fledged	2	Nil	Good	N/A	Nil
Elphin 02	Female Carnaby's 45 days old	Dead nestling removed, died 60+ days	2	Nil	Good	N/A	Nil
Elphin 03	Male Carnaby's 24 days old, female flushed heavy chewing on walls.	Large nestling still present	7	0	Dead stag	N/A	Nil
Elphin 04	Five-day old CC and egg being incubated, Chewing on post. Female flushed	Male Carnaby's nestling 45 days old	5	0	Dead Stag	N/A	Tin to cover splits in side of hollow

APPENDIX 2. DETAILS OF PROCESSED NESTLINGS IN SEASON 2025 AS 22 OCTOBER 2025

Date	Nest No	Sex	Band No	FLW	Actual weight	Age days	DNA	Comments
21 Oct 2025	BY15	M	320-02295	230	620	50	3	Fledge from 17/11/2025
21 Oct 2025	BY20	F	320-02296	141	570	37	3	Fledge from 01/12/2025
22 Oct 2025	BY36	M	320-02297	136	440	36	0	Fledge from 02/12/2025
22 Oct 2025	BY35	M	320-02298	125	500	35	0	Fledge from 03/12/2025
22 Oct 2025	BY34	M	320-02299	150	540	39	0	Fledge from 29/11/2025
22 Oct 2025	WO2	F	320-02300	193	670	45	0	Fledge from 23/11/2025
22 Oct 2025	WO3	M?	320-02301	68	390	24	0	Fledge from 14/12/2025
22 Oct 2025	WO1	F	320-02302	137	530	37	0	Fledge from 01/12/2025
22 Oct 2025	BY34	F	320-02303	279	700	59	0	Fledge from 9/11/2025
04 Dec 2025	BY01	F	320-02848	271	660	58		
04 Dec 2025	BY03	F	320-02849	298	670	64		
04 Dec 2025	BY04	F	320-02850	207	650	47		
04 Dec 2025	BY17	M	320-02851	203	650	47	6F- #23	
04 Dec 2025	BY18	M	320-02852	222	660	50	0	
04 Dec 2025	Kwob02	F	320-02853	295	620	63	0	
04 Dec 2025	Kwob02	M	320-02854	273	610	58	0	

OFFICIAL

04 Dec 2025	BY27	F	320-02855	74	380	25	0	
04 Dec 2025	BY28	M	320-02856	100	420	31	0	
04 Dec 2025	BY28	F	320-02857	93	380	29	0	
05 Dec 2025	Elphin 04	M	320-02859	203	590	47	5F- #25	

APPENDIX 3 PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH D01 TO BY15 – Attached separately.

APPENDIX 4 PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH BY16 TO REPAIR 3 ELPHIN– Attached separately.

APPENDIX 5 PHOTOGRAPHS AND OBSERVATION DETAILS OF ANH BY37 TO ANH51 (HIGHBURY)– Attached separately

Artificial Hollow D01



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
D01	No signs of nesting or inspection by Black Cockatoos. Duck at base of hollows	No signs of nesting or inspection by Black Cockatoos. Duck feathers at base of hollows	0	Nil	Good	Good	Nil

Artificial Hollow D02



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
D02	No signs of nesting or inspection by Black Cockatoos. Cobwebs	No signs of nesting or inspection by Black Cockatoos. Cobwebs	0	Nil	Good	Good	Nil

Artificial Hollow D03



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
D03	No signs of nesting or inspection by Black Cockatoos. Cobwebs at entry, duck down and one broken duck egg	No signs of nesting or inspection by Black Cockatoos. Cobwebs at entry, duck down and one broken duck egg	0	Nil	Good	Good	Nil

Artificial Hollow D04



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
D04	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY01



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY01	Female CC Flushed 1 x 8-10day old CC nestling, second CC nestling dead (48hrs)	One 58-day old female CC nestling	3	Nil	Good	Good	Nil

Artificial Hollow BY02



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY02	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY03



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY03	Female CC flushed, One 13 to 15-day old CC nestling Chewing on post.	One 64-day old female CC nestling	3	Nil	Good	Good	Nil

Artificial Hollow BY04



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY04	Female CC flushed, 2 x CC eggs, chewing on post	One 47-day old female CC nestling	3	Nil	Good	Good	Nil

Artificial Hollow BY05



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY05	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil

Artificial Hollow BY06



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY06	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY07



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY07	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY08



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY08	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY09



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY09	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil

Artificial Hollow BY10



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY10	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY11



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY11	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY12



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY12	Female CC prospecting at hollow with Male, chewing on post no sign of Breeding	Chewing on post no signs of Breeding	3	Nil	Good	Good	Nil

Artificial Hollow BY13



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY13	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	1	Nil	Good	Good	Nil

Artificial Hollow BY14



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY14	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY15



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY15	One Male 50 day old CC nestling. Leg banded	Nestling Fledged, heavy pooh load on floor	5	Nil	Good	Good	Nil

Artificial Hollow BY16



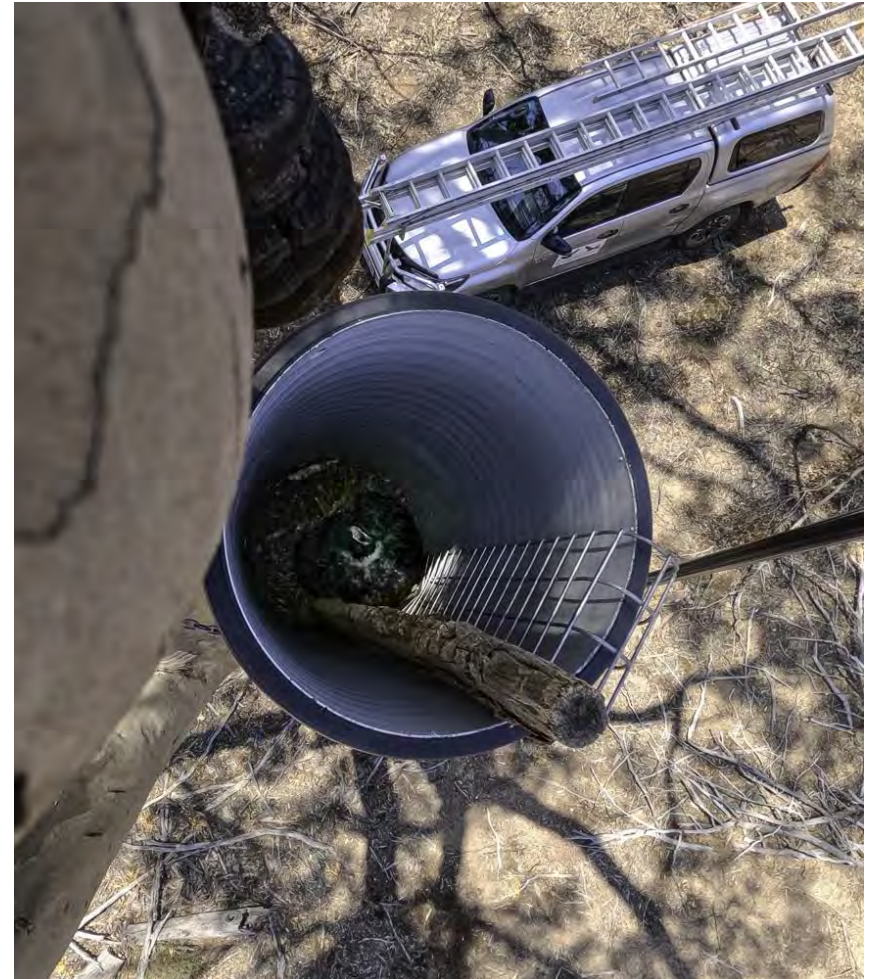
Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY16	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY17



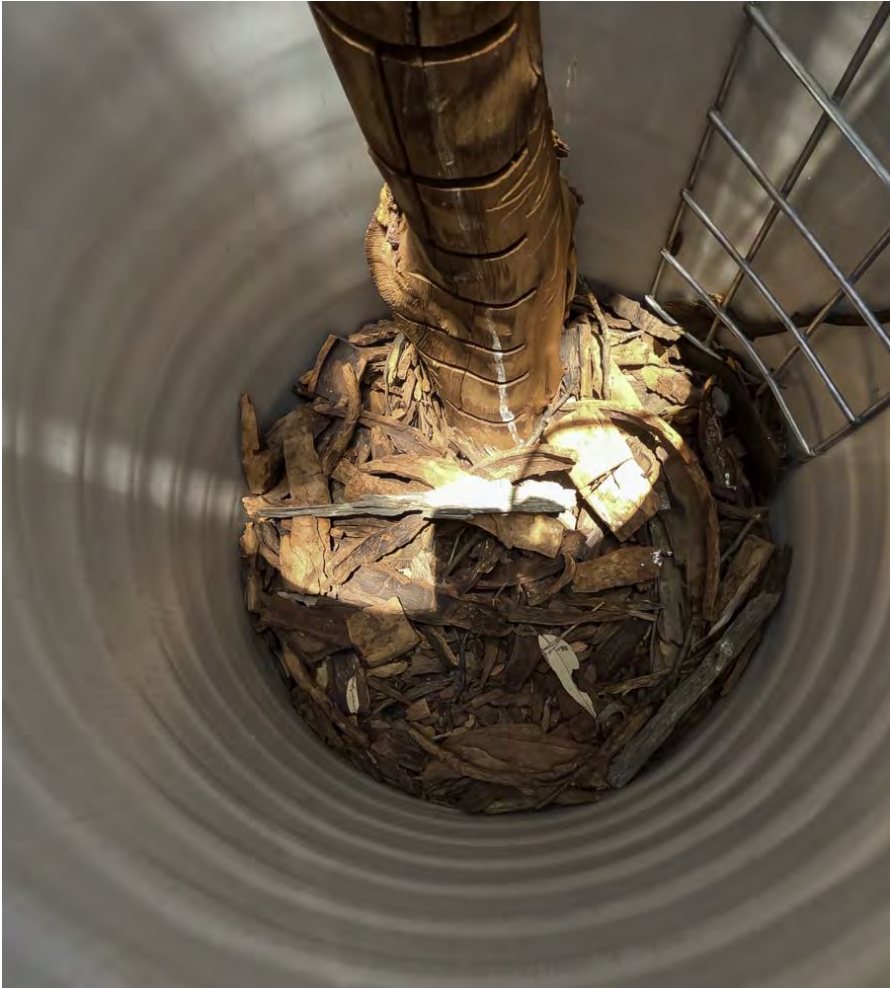
Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY17	Female CC flushed, One 4-5-day old CC nestling, and still incubating second egg.	One 47-day old male CC nestling	2	Nil	Good	Good	Nil

Artificial Hollow BY18



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY18	Female CC flushed, One 4-5-day old CC nestling, and still incubating second egg.	One 50-day old male CC nestling	5	Nil	Good	Good	Nil

Artificial Hollow BY19



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY19	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY20



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY20	One Female CC nestling 35 days old. Second nestling dead (48 hours).	Nestling Fledged, heavy poo load on floor	4	Nil	Good	Good	Nil

Artificial Hollow BY21



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY21	Chewing on post no signs of Breeding	One 8-10-day old CC nestling	2	Nil	Good	Good	Nil

Artificial Hollow BY22



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY22	Heavy Chewing on post no signs of Breeding	Female flushed, One 4-day old CC nestling and egg being incubated	4	Nil	Good	Good	Nil

Artificial Hollow BY23



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY23	Chewing on post, no signs of Breeding	Chewing on post, no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY24



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY24	Chewing on post no signs of Breeding	Chewing on post no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY25



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY25	One predated CC Egg, heaving chewing on post	Chewing on post, no signs of second Breeding attempt	3	Nil	Good	Good	Nil

Artificial Hollow BY26



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY26	Chewing on post no signs of Breeding	Chewing on post, no signs of Breeding	3	Nil	Good	Good	Nil

Artificial Hollow BY27



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY27	Female CC flushed, 1 x CC eggs, chewing on post	One 25-day old female CC nestling	3	Nil	Good	Good	Nil

Artificial Hollow BY28



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY28	Female CC flushed, 2 x CC eggs, chewing on post	One 31-day old male and one 29- day old female CC nestling	3	Nil	Good	Good	Nil

Artificial Hollow BY29



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY29	Minor chewing on post, no signs of Breeding	Chewing on post, no signs of Breeding	1	Nil	Good	Good	Nil

Artificial Hol



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY30	Chewing on post no signs of Breeding	Chewing on post, no signs of Breeding	2	Nil	Good	Good	Nil

Artificial Hollow BY31



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY31	Female Carnabys, 59 days old CC, Chewing on post	Fledged	5	Nil	Good	Good	Nil

Artificial Hollow BY32



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY32	Smashed CC egg in base of hollow	No sign of relay	3	Nil	Good	Good	Nil

Artificial Hollow BY33



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY33	Female CC flushed, 2 x CC eggs, chewing on post	Failure	5	Nil	Good	Good	Nil

Artificial Hollow BY34



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY34	Male Carnabys,39 days old CC, Chewing on post	Fledged	3	Nil	Good	Good	Nil

Artificial Hollow BY35



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY35	Male Carnabys, 35 days old CC, Chewing on post	Fledged	3	Nil	Good	Good	Nil

Artificial Hollow BY36



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY36	Male Carnabys,36 days old CC, Chewing on post	Fledged	2	Nil	Good	Good	Nil

Natural Hollow Repair One (Badgebup



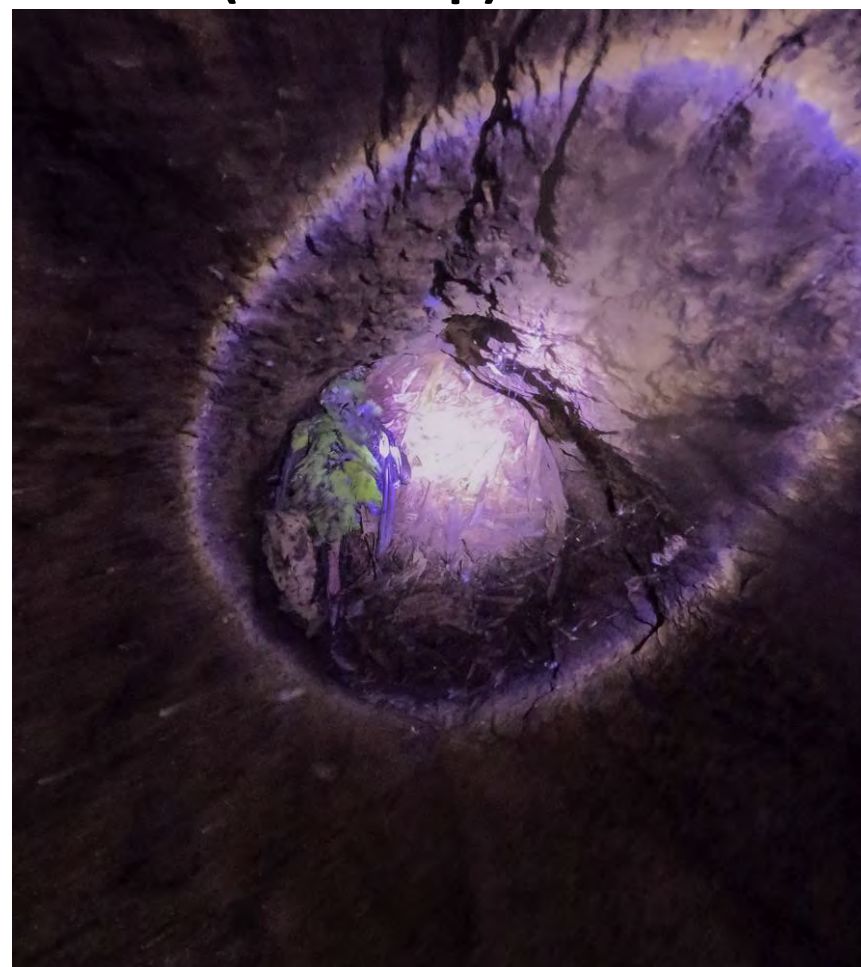
Hollow#	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
Badgebup 01	2 CC breast feathers on floor, Chewing in hollow no signs of Breeding	Female flushed, one CC egg	2	Nil	Good	N/A	Nil

Natural Hollow Repair Two (Kwobrup)



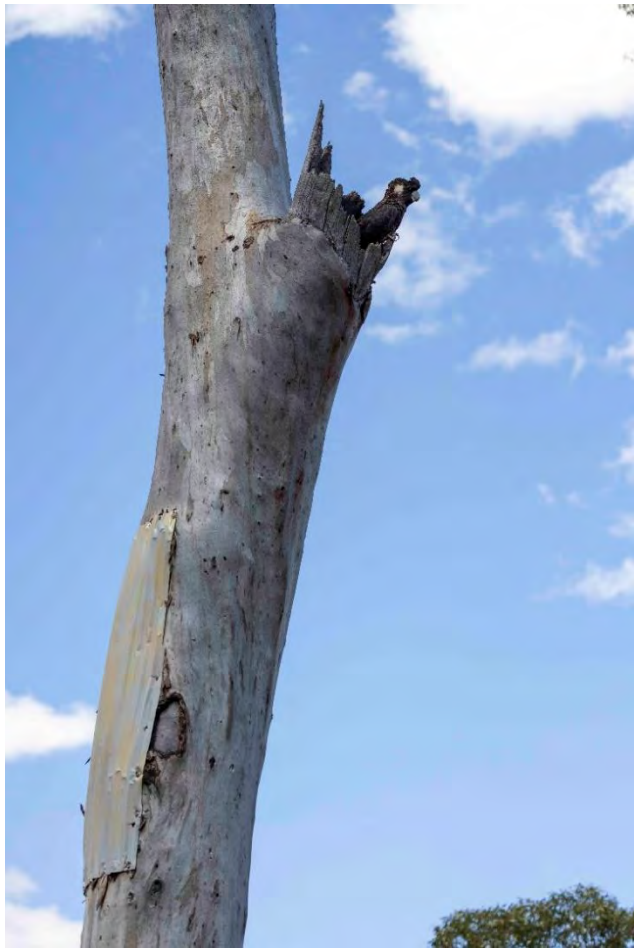
Hollow#	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
Kwobrup 02	Heavy chewing hollow, 2 x CC nestlings 12-15 days old	One 64-day old female and one 58- day old male CC nestling	5	Nil	Good	N/A	Nil

Natural Hollow Repair Three (Kwobrup)



Hollow#	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
Kwobrup 03	No signs of nesting or inspection by Black Cockatoos.	One dead regent parrot in base of hollow. Hollow is deep however even floor	0	nil	Good	N/A	NIL

Natural Hollow Repair One (Elphin)



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
Elphin 01	Female Carnaby's, 37 days old, female flushed	Fledged	2	Nil	Good	N/A	Nil

Natural Hollow Repair Two (Elphin)



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
Elphin 02	Female Carnaby's 45 days old	Dead nestling removed, died 60+ days	2	Nil	Good	N/A	Nil

Natural Hollow Repair Three (Elphin)



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
Elphin 03	Male Carnaby's 24 days old, female flushed heavy chewing on walls.	Large nestling still present	7	0	Dead stag	N/A	Nil

Natural Hollow Repair Four (Elphin)



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
Elphin 04	Five-day old CC and egg being incubated, Chewing on post. Female flushed	Male Carnaby's nestling 45 days old	5	0	Dead Stag	N/A	Tin to cover splits in side of hollow

Artificial Hollow BY37



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY37	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY38



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY38	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY39



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY39	No signs of nesting or inspection by Black Cockatoos Corrected GPS Point S33.29549 E117.059733	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY40



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY40	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY41



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY41	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY42



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY42	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY43



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY43	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY44



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY44	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY45



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY45	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY46



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY46	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY47



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY47	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY48



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY48	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY49



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY49	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY50



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY50	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

Artificial Hollow BY51



Hollow #	Observations Oct 2025	Observations Dec 2025	Chipping 0-10	Wood Chips Lts	Tree condition	Fixings	Recommend repairs
BY51	No signs of nesting or inspection by Black Cockatoos	No signs of nesting or inspection by Black Cockatoos	0	Nil	Good	Good	Nil

APPENDIX L: M5.3 Environmental Performance Report – Construction Fauna Management Plan

Environmental Performance Report – Construction Fauna Management Plan

**Bunbury Outer Ring Road –
Southern Approval
Ministerial Statement 1191**

*Keeping
WA Moving*

2025-2026 Reporting Period

Document Control

Report Compilation & Review	Position	Document Revision	Date
Author:	Environment Officer	Draft A	29 July 2026
Reviewer:	Principal Environment Officer - CRSP	Draft B	17 Aug 2026
Approver:	Principal Environment Officer	Rev 0	19 Aug 2026

Executive Summary

This Environmental Performance Report (EPR) details the environmental performance and compliance of the Bunbury Outer Ring Road (BORR) Southern Section project under Ministerial Statement 1191 (MS 1191) for the 12-month period from 31 May 2025 to 31 May 2026. Over the reporting period, Main Roads Western Australia was in full compliance with all environmental objectives mandated by MS 1191 Condition 5, demonstrating effective fauna protection and habitat management across all targeted terrestrial species.

During the 2025–2026 reporting period, no ground disturbance or clearing of fauna habitat occurred.

Cumulative clearing remains below all allowable limits set under MS 1191, with Western Ringtail Possum (WRP) habitat clearing at 42.52 ha (60.9 ha permitted) and South-western Brush-tailed Phascogale (BPh) habitat clearing at 29.89 ha (39.2 ha permitted).

Ongoing bi-monthly monitoring undertaken by Biota Environmental Sciences confirmed that local WRP populations have maintained resilience and stability across adjacent receiving habitats following earlier construction clearing phases. Baseline density patterns established prior to clearing provided a robust benchmark across the project footprint, receiving habitat patches, and regional reference sites (Reserve 23,000 and Lot 2). While initial localised shifts occurred as individuals moved into adjacent retained bushland during early clearing stages, long-term monitoring confirmed that these movements did not cause population collapses, high mortality or permanent abandonment of adjacent receiving habitats.

Retained vegetation corridors continue to support viable breeding populations, with post-construction WRP densities in receiving habitats returning to and remaining at levels comparable to pre-construction baselines.

Comparative population tracking confirm that the local WRP population has not suffered adverse indirect impacts attributable to project construction, edge effects, or habitat fragmentation. Density fluctuations and count variations recorded across receiving habitat patches during the reporting period mirrored identical trends observed simultaneously at unimpacted regional reference sites (Reserve 23,000 and Lot 2). These population shifts strongly correlated with broader regional climatic drivers, specifically natural seasonal breeding cycles and population recovery following the extreme regional dry period of 2023/2024, rather than indirect disturbance from road construction.

Contents

Executive Summary.....3

1 INTRODUCTION5

1.1 Background..... 5

1.2 MS 1191 Condition 5 5

1.3 Purpose and Scope..... 6

2 Environmental Performance Report7

2.1 Compliance with MS 1191 Conditions 5-1, 5-2 and 5-3 7

2.2 Clearing metrics in relation to Terrestrial Fauna..... 8

2.3 Management Actions Undertaken - Condition 5-3(4) 8

2.4 Environmental Outcomes - Condition 5-3(1) 9

2.5 Population Monitoring10

Appendix A Environmental Performance Report (Biota Environmental Science, 2026)11

1 INTRODUCTION

1.1 Background

The Commissioner of Main Roads Western Australia (Main Roads) has been granted conditional approval for the Bunbury Outer Ring Road (BORR) Southern Section (the Proposal) (Figure 1) under Part IV Division 2 (section 45) of the *Environmental Protection Act 1986* by the Minister for Environment. The Proposal is subject to the implementation conditions of Ministerial Statement 1191 (MS 1191) which was issued on 31 May 2022 (Minister for Environment, 2022).

In its Report and Recommendations for the Proposal (EPA Report 1714, October 2021), the EPA noted that in relation to Terrestrial Fauna, the key values likely to be impacted by the proposal are the local and regional population levels of conservation significant terrestrial fauna. The residual impacts to these values are predominately from clearing of habitat, habitat fragmentation and changes to hydrological regimes of aquatic habitat.

1.2 MS 1191 Condition 5

To mitigate and manage direct and indirect impacts to Terrestrial Fauna, specifically Western Ringtail Possum (WRP) habitat and Brush-tailed Phascogale (BPh), Condition 5 of MS 1191, requires the following:

Condition 5-1

The proponent shall implement the proposal to achieve the following environmental objective:

- (1) during construction, minimise and manage project attributable adverse impacts to conservation significant terrestrial fauna including western ringtail possum and south-western brush-tailed phascogale.*

Condition 5-2

The proponent shall prepare a Construction Fauna Management Plan and submit to the CEO prior to ground-disturbing activities. This Plan shall:

- (1) specify the passive relocation management actions to be implemented prior to and during clearing;*
- (2) define the low-risk clearing timeframe for western ringtail possum applicable to Category 1 Clearing Areas and append supplementary survey evidence to justify the chosen timeframe;*
- (3) specify monitoring that:*
 - (a) includes a baseline survey to be undertaken within thirty (30) days prior to clearing (or if staged, prior to each clearing stage) to confirm presence/absence and number of western ringtail possum and south-western brush-tailed phascogale individuals within the development envelope and at receival sites. The baseline survey shall be prepared and undertaken on advice of DBCA during the preparation of the Construction Fauna Management Plan;*
 - (b) records whether threatened or priority fauna is encountered during clearing, and reports to the CEO and DBCA within thirty (30) days after clearing (or each clearing stage) on the number of individuals relocated in accordance with any*

- requirements of the lawful authority obtained under the Biodiversity Conservation Act 2016;*
- (c) evaluates the suitability, adequacy and effectiveness of passive relocation management actions at reducing impacts to western ringtail possum individuals displaced by clearing from Category 1 Clearing Areas defined in Figure 3;*
 - (d) evaluates impacts to residential western ringtail possum individuals at receival sites; and*
 - (e) uses monitoring methods including, but not limited to, radio telemetry with robust sample sizes (the minimum number of tagged animals to be determined in consultation with DBCA).*
- (4) identify and spatially define the study area(s) and reference sites proposed for monitoring and evaluation and provide rationale for the location of the sites;*
 - (5) specify management action; management targets; monitoring locations; methodologies, indicators and timing; and actions and investigations in the event of a failure to meet a management target to demonstrate the objective in condition 5-1 will be met; and*
 - (6) be prepared in consultation with DBCA and in accordance with any requirements of a lawful authority obtained under the Biodiversity Conservation Act 2016.*

1.3 Purpose and Scope

This Environmental Performance Report (EPR) addresses the compliance of the Bunbury Outer Ring Road (BORR) Southern Section (the Proposal) with Condition 5-3 set out in Ministerial Statement 1191 (MS 1191).

Condition 5-3 of MS 1191 requires an annual environmental performance report to be submitted to the Chief Executive Officer (CEO) of the Environmental Protection Authority (EPA) as part of the Compliance Assessment Report (CAR).

Condition 5-3

The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:

- (1) outline the monitoring that was undertaken during the implementation of the Construction Fauna Management Plan required in condition 5-2;*
- (2) outline the results of the monitoring undertaken to report whether that the environmental outcomes specified in condition 5-1(1) were achieved;*
- (3) report whether that the outcomes in condition 5-1(1) were achieved; and*
- (4) outline any management actions undertaken during the implementation of the Construction Fauna Management Plan required in condition 5-2 to meet the objective in condition 5-1(1).*

This EPR incorporates a 12-month audit period from 31 May 2025 to 30 May 2026. This is the fourth EPR associated with Condition 5-3 to be submitted under Ministerial Statement 1191.

This EPR, including Biota Environmental Sciences' WRP monitoring report (see Appendix A), has been prepared to address Conditions 5-1(1), 5-2 and 5-3 of MS 1191 during the reporting period.

2 Environmental Performance Report

2.1 Compliance with MS 1191 Conditions 5-1, 5-2 and 5-3

Compliance with Conditions 5-1, 5-2 and 5-3 is addressed in Table 1.

Table 1. Compliance status with regard to MS 1191 Conditions 5-1, 5-2 and 5-3.

MS 1191 Condition	Condition	Status	Evidence / Compliance
5-1	<i>The proponent shall implement the proposal to achieve the following environmental objective:</i> <i>(1) during construction, minimise and manage project attributable adverse impacts to conservation significant terrestrial fauna including western ringtail possum and south-western brush-tailed phascogale.</i>	Compliant	2025-2026 CAR.
5.3 (1)	<i>The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:</i> <i>(1) outline the monitoring that was undertaken during the implementation of the Construction Fauna Management Plan required in condition 5-2</i>	Compliant	Please refer to the 2025-2026 CAR. Please refer also to attached EPR report (Biota Environmental Science, 2026).
5.3 (2)	<i>The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:</i> <i>(2) outline the results of the monitoring undertaken to report whether that the environmental outcomes specified in condition 5-1(1) were achieved;</i>	Compliant	Please refer to the 2025-2026 CAR. Please refer also to attached EPR report (Biota Environmental Science, 2026) with regard to the bi-monthly, telemetry and mark-resight surveys and genetic relatedness study.
5-3(3)	<i>The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:</i>	Compliant	Please refer to the 2025-2026 CAR. Please refer also to attached EPR report (Biota

	<i>(3) report whether that the outcomes in condition 5-1(1) were achieved; and</i>		Environmental Science, 2026)
5-3(4)	<i>The proponent shall annually submit an Environmental Performance Report as part of the Compliance Assessment Report required by condition 12-6, that shall:</i> <i>(4) outline any management actions undertaken during the implementation of the Construction Fauna Management Plan required in condition 5-2 to meet the objective in condition 5-1(1)</i>	Compliant	Please refer to the 2025-2026 CAR.

2.2 Clearing metrics in relation to Terrestrial Fauna

Construction of the Proposal commenced on 1 August 2022.

There was no additional clearing or disturbance in relation to WRP and BPh habitat during the 2025 – 2026 reporting period.

Clearing and disturbance of Terrestrial Fauna habitat during previous reporting periods is summarised in Table 2, noting no clearing of WRP and BPh habitat occurred during the 2025-2026 reporting period.

Table 2. Ground disturbance and clearing in relation to WRP and BPh habitat

Environmental Aspect	Area / Quantity specified in Ministerial Statement 1191	Area / Quantity cleared during the 2022 -2023 reporting period	Area / Quantity cleared during the 2023 -2024 reporting period	Area / Quantity cleared during the 2024 -2025 reporting period	Total Area / Quantity cleared
Western ringtail possum habitat	60.9 ha	24.39 ha	17.94 ha	0.19 ha	42.52 ha
Brush-tailed phascogale habitat	39.2 ha	18.09 ha	11.72 ha	0.08 ha	29.89 ha

2.3 Management Actions Undertaken - Condition 5-3(4)

To meet the objective in Condition 5-1(1), avoiding and minimising direct and indirect impacts on terrestrial fauna, a suite of proactive management and mitigation actions were maintained under the Construction Fauna Management Plan (CFMP) during the 2025–2026 reporting period.

Although no clearing was undertaken in the 2025-2026 reporting period, key management actions undertaken during proposal implementation included:

- Physical exclusion fencing or high-visibility boundary flagging maintained along project boundaries adjacent to retained fauna habitat to prevent unauthorised machinery access or accidental vegetation damage.

- Regular site inspections were conducted along the edges of retained bushland to verify boundary integrity, prevent unauthorised access, and ensure site boundaries remained secure.
- Active weed suppression, mulching, and edge protection measures were maintained along cleared boundaries bordering retained habitat to prevent weed invasion and edge degradation.
- Main Roads maintained bi-monthly fauna monitoring (executed by Biota Environmental Sciences) across adjacent receiving habitat patches and regional reference sites to track WRP population density, health, and movement patterns. This monitoring ensured early detection of potential stress indicators, confirming that adjacent receiving habitats remained viable and stable following earlier construction phases.

2.4 Environmental Outcomes - Condition 5-3(1)

Under MS 1191 Condition 5-1(1), Main Roads is required to ensure the objective of avoiding, where possible, and minimising direct and indirect impacts on terrestrial fauna, specifically the WRP, BPh and Black Cockatoo species, during the construction of the Proposal.

During the 2025–2026 reporting period, the environmental outcomes specified under Condition 5-1(1) were achieved, through:

- Direct Habitat Disturbance and Clearing Limits
 - No ground disturbance or habitat clearing for terrestrial fauna occurred during the 2025–2026 reporting period.
 - Cumulative habitat clearing remains under the maximum disturbance limits permitted under MS 1191:
 - WRP Habitat: Cumulative clearing stands at 42.52 ha, remaining 18.38 ha below the approved limit of 60.9 ha.
 - BPh Habitat: Cumulative clearing stands at 27.61 ha, remaining 11.59 ha below the approved limit of 39.2 ha.
- Construction Phase Fauna Protection & Impact Mitigation
 - No fauna mortalities or injuries attributable to clearing or site activities occurred during the reporting period.
 - Retained fauna habitat and designated clearing exclusion zones remained undisturbed, with physical boundary fencing and signage preventing accidental encroachment or indirect degradation.

2.5 Population Monitoring

Ongoing bi-monthly fauna monitoring undertaken by Biota Environmental Sciences confirmed that WRP population dynamics within adjacent receiving habitat and reference sites (Reserve 23,000 and Lot 2) have stabilised following historical clearing activities.

Prior to the commencement of construction, WRP monitoring established baseline density and distribution patterns across the project footprint, adjacent receiving habitat patches, and regional reference sites (Reserve 23,000 and Lot 2). Initial monitoring during the early vegetation clearing phase revealed localised movement of individuals into adjacent retained bushland. However, bi-monthly distance sampling and population tracking throughout the construction period demonstrated that these initial shifts did not result in widespread mortality or regional population collapse.

As construction progressed, WRP population densities within the adjacent receiving habitat patches stabilised. While periodic fluctuations in individual counts were recorded across specific survey patches during construction, comparative analysis showed that identical trends were occurring simultaneously at the unimpacted reference sites. These ongoing population movements and density shifts strongly correlated with regional climatic drivers, most notably the extreme dry period experienced during the 2023/2024 summer, and natural seasonal breeding cycles, rather than direct ongoing disturbance from construction activities.

Following the completion of habitat clearing, WRP population dynamics across receiving habitats have remained resilient and comparable to pre-construction baseline levels. The monitoring data confirms that retained vegetation corridors continue to support viable breeding populations, with no long-term decline or permanent abandonment of adjacent habitat attributable to the project. Overall, the local possum population has maintained stability, with the population trends tracking alongside reference populations throughout the construction phase.

Appendix A Environmental Performance Report (Biota Environmental Science, 2026)

5 August 2026

Alex Plank
Environment and Heritage
Planning and Technical Services Directorate
Main Roads Western Australia
Via Email

Biota
Environmental
Sciences



Dear Alex

Biota (n): The living creatures of an area; the flora and fauna together

Bunbury Outer Ring Road (Southern Section): Compliance Assessment Report (CAR) May 31 2025 to 31 May 2026.

Biota Environmental Sciences have contributed to several scopes of work related to the Bunbury Outer Ring Road (BORR) Southern Section, required under Ministerial Approval 1191. These scopes largely relate to Western Ringtail Possum (WRP) monitoring activities documented in the Construction Fauna Management Plan (CFMP) and Habitat Fragmentation Management Plan (HFMP). The scopes include bi-monthly surveys, telemetry studies, mark-resight studies, a genetic relatedness study and WRP habitat condition surveys.

Compliance Assessment Reporting (CAR) is a requirement for the BORR (Southern Section) under the Ministerial Approval 1191 with the current reporting period coinciding with the period 31st May 2025 to 31st May 2026.

This document reports on the aspects of WRP monitoring required under the CFMP that were undertaken by Biota Environmental Sciences.

The scope of works issued to Biota relevant to this reporting period, are specifically:

- Pre-clearing WRP and Brush-tailed Phascogale (BTP) survey of the Development Envelope, receival sites and reference sites (reported elsewhere);
- Post-clearing WRP and BTP surveys of the receival and reference sites as part of the on-going bi-monthly survey;
- Mark-resight study using PIT tags of WRP within the Development Envelope and receival sites;
- WRP habitat condition surveys via assessment of 3D aerial imagery.

There was no clearing undertaken during the reporting period with the majority of clearing essentially completed in 2023.

Bi-monthly surveys

Bi-monthly (every two months) surveys have been completed throughout the reporting period (31 May 2025 – 31 May 2026) (Tables 1 and 2) and have included habitat within the development envelop (Patches), the receiving habitat, Reserve 23,000 (the BORR South Reference site) and Lot 2 (the BORR North-Central Reference site).

Table 1. BORR South bi-monthly survey dates during current reporting period.

Phase	Survey Date
June 2025	Not surveyed — patch counts cancelled due to adverse weather
August 2025	8 th , 12 th and 27 th August 2025
October 2025	16 th October 2025
December 2025	1 st –22 nd December 2025
February 2026	13 rd –4 th February 2026
April 2026	23 rd and 29 th April 2026

Table 2. BORR South reference site (Reserve 23,000) bi-monthly survey dates during current reporting period.

Phase	Survey Date
June 2025	3 rd –4 th July 2025 (reported as the June 2025 phase)
August 2025	6 th –8 th August 2025
October 2025	14 th –15 th October 2025
December 2025	8 th –10 th December 2025
February 2026	16 th –17 th February 2026
April 2026	21 st –23 rd April 2026

The bi-monthly surveys commenced in August 2019 and the approximately five years of continuous data provide a robust baseline for population size and natural fluctuations within the survey footprint. Methods adopted for these surveys are provided in Appendix A. The count data from each bimonthly survey of the development envelop are shown in Figure 1 and are divided into Patches with these delineated in Appendix B. The surveyed footprint is delineated into three units:

- 1) Patches. The areas that were approved for clearing and designated as sub-areas numbered Patch 1 to Patch 9 (Appendix B). They have been surveyed at every bi-monthly survey since August 2019. Notably, as clearing proceeded and animals were shepherded and displaced out of the footprint, the count here was expected to fall. Note that not all this ground was cleared, and access to some patches (e.g. 1–4, on private land) was restricted part way through the period.
- 2) Receiving-habitat. Habitat immediately adjoining the clearing footprint and extending about 100 m (or roughly one WRP home-range width into the surrounding habitat. It is the area the Ministerial Condition 6-2 is reported against and encompasses the area into which possums displaced from the cleared habitat were expected to move. The increased count in this habitat during clearing is the consequence of displacement. The long-term compliance requirement is that density in this habitat returns to pre-disturbance levels. Monitoring of the receival sites at a consistent intensity began in June 2022 and so has a relatively shorter pre-clearing baseline compared to the Patches. Much of the receiving habitat is located within private property and permission to access these to survey has declined post-construction.
- 3) Reference-sites (Reserve 23,000 and Lot 2). These are two comparison sites: Reserve 23,000 (149 hectares) and Lot 2 (88 hectares). They have been surveyed since November 2019.

Effort, measured by the length of transects walked for each Patch or within the receiving habitat, was not always consistent across the surveys in this monitoring program. This inconsistency was largely due to clearing (of Patches) variable access constraints on different parcels of private land. To account for this, we report density (individuals per surveyed hectare) in addition to abundance. Effort within both Reference sites has been consistent throughout the program.

Considering the changing access permissions and the subsequent effect on the bi-monthly counts within the receiving habitat, we suggest that the impact of clearing on WRP abundance within the receiving habitat is best understood by examining the results of the movement study (summarised below) alongside the count data. Importantly, the Reference site data also clearly shows the impact of the hot dry summer of 2023 /24 (which followed clearing) on WRP counts.

The BORR South reference site (Reserve 23,000) comprising 72 km of transects, is considered sufficiently large to provide a demographic snapshot of the entire monitoring period (commencing November 2019). Approximately 5 ha of Reserve 23,000 representing 3.4 % of the total area (146 ha) was burnt following a lightning strike on the 3/01/2023 and should be considered when interrogating the bi-monthly counts for this Reserve.

Within Reserve 23,000 the seasonal peaks and troughs are broadly comparable across years (with the exception of December 2023 – August 2025). Moreover, these patterns are shared with Lot 2 and with the counts in the receiving habitat (Figure 3). The peaks are associated with the emergence of young from the pouch, typically evident in the October and December counts but with an occasional April peak (Figure 2). Troughs are evident in the winter counts (Figure 2). Note that the solid black line denotes the number of encounters whilst bars sum the total number of individuals. The difference between the two indicates detections of more than one individual and typically indicate a female with an attendant young (either on the back or at heel). Against this background cycle, there are notable perturbations: the extremely hot, dry summer of 2023/24 (with prolonged runs of very hot days and little rain extending into autumn of 2024) coincided with the sharp abundance drop in February 2024 and April 2024, and the loss was proportionally greatest among juveniles, nearly all young recorded in December 2023 were absent by February 2024. The February 2024 estimate was lower than any of the preceding August counts, when the population is usually at its seasonal low, and the decline continued through April and into December 2024 (when newly emerged young are typically seen with mothers), suppressing what is normally a seasonal high. Second, seasonal rainfall appears to buffer summer declines: the relatively wet conditions through 2021 supported a clear rebound by April 2022 that partially offset losses from the hot, dry 2021/22 summer; by contrast, the dry autumn and winter of 2023 preceded the 2023/24 crash. An atypical increase in counts was recorded in February 2025 that may represent immigration from adjoining watered properties (residential gardens, larger bush blocks and the golf course) rather than in-situ recruitment. The rebound has continued through the current reporting period with evidence of breeding again recorded in October 2025. The relatively mild summer of 2025/26 corresponded to only a small reduction in counts through February 2026 and into April 2026.

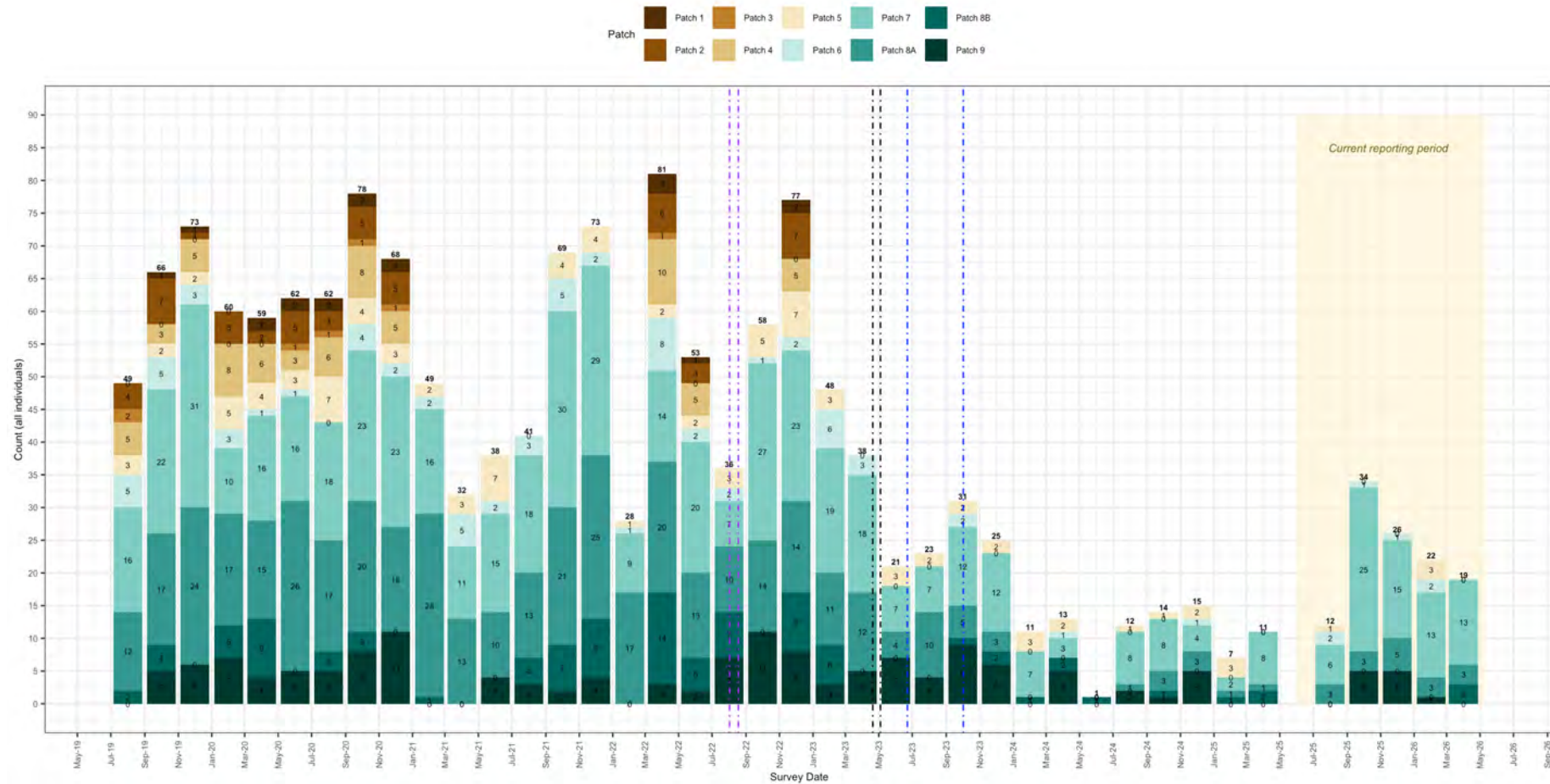


Figure 1. Counts of Western Ringtail Possums in the BORR South study area, stacked by Patch, August 2019 to April 2026. Bold figures above each bar are phase totals. Purple hatched lines: Stage 1 clearing (Bussell Highway–Yalinda Drive). Black: Gelorup access track. Blue: Stage 2 clearing (Yalinda Drive–Jilly Road). The shaded panel marks the five phases collected since the CAR 2025 reporting period closed. Note that effort is not always equivalent between phases, which contributes to some of the variation.

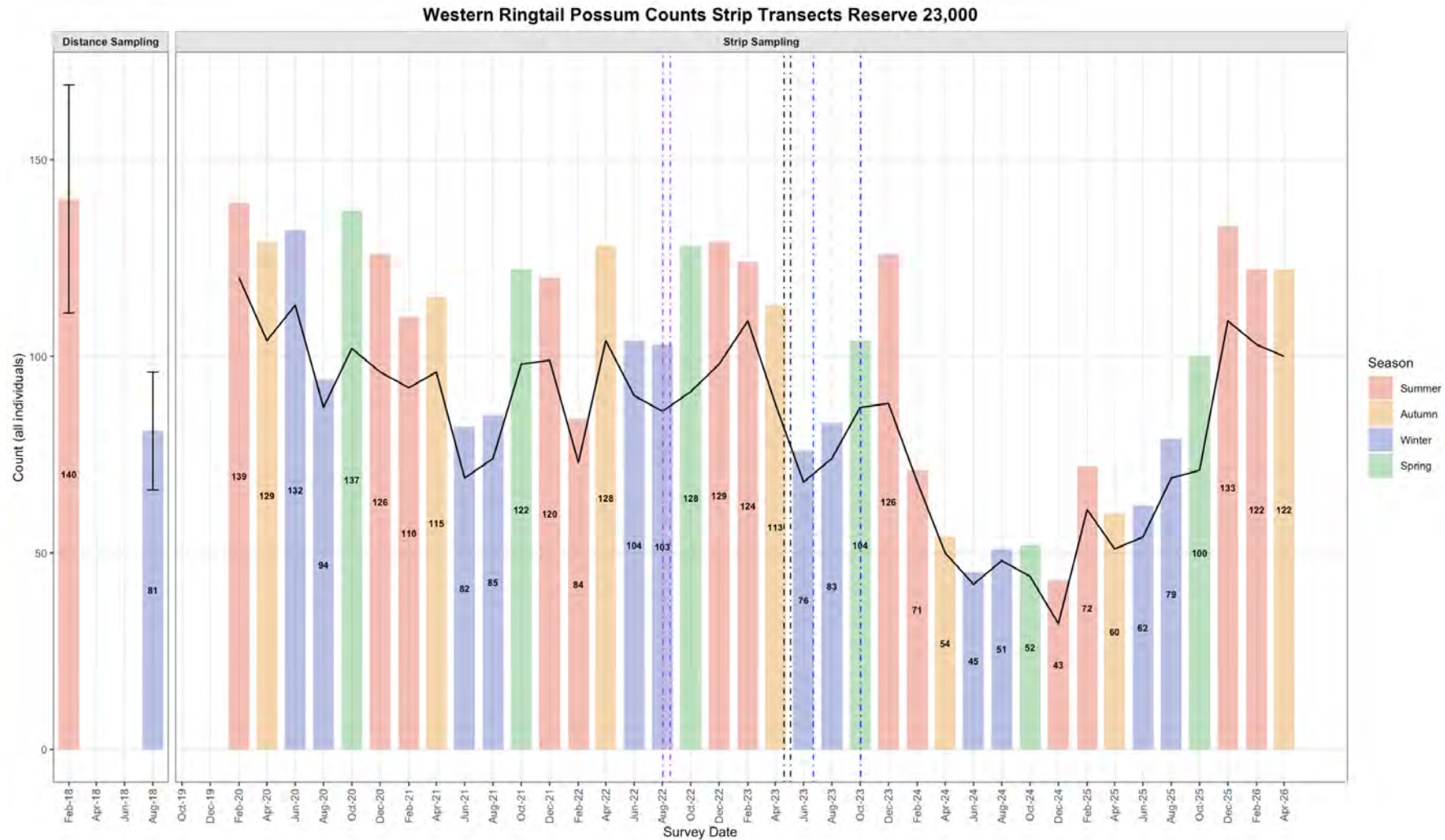


Figure 2. Results of counts of Western Ringtail Possums in Reserve 23,000 using distance sampling in the first panel (bars represent total number of individuals, black vertical bars are standard error estimates) and strip sampling in the second panel (bars represent total number of individuals, black line representing the total number of detections). Purple hatched lines: Stage 1 clearing (Bussell Highway–Yalinda Drive). Black: Gelorup access track. Blue: Stage 2 clearing (Yalinda Drive–Jilly Road).

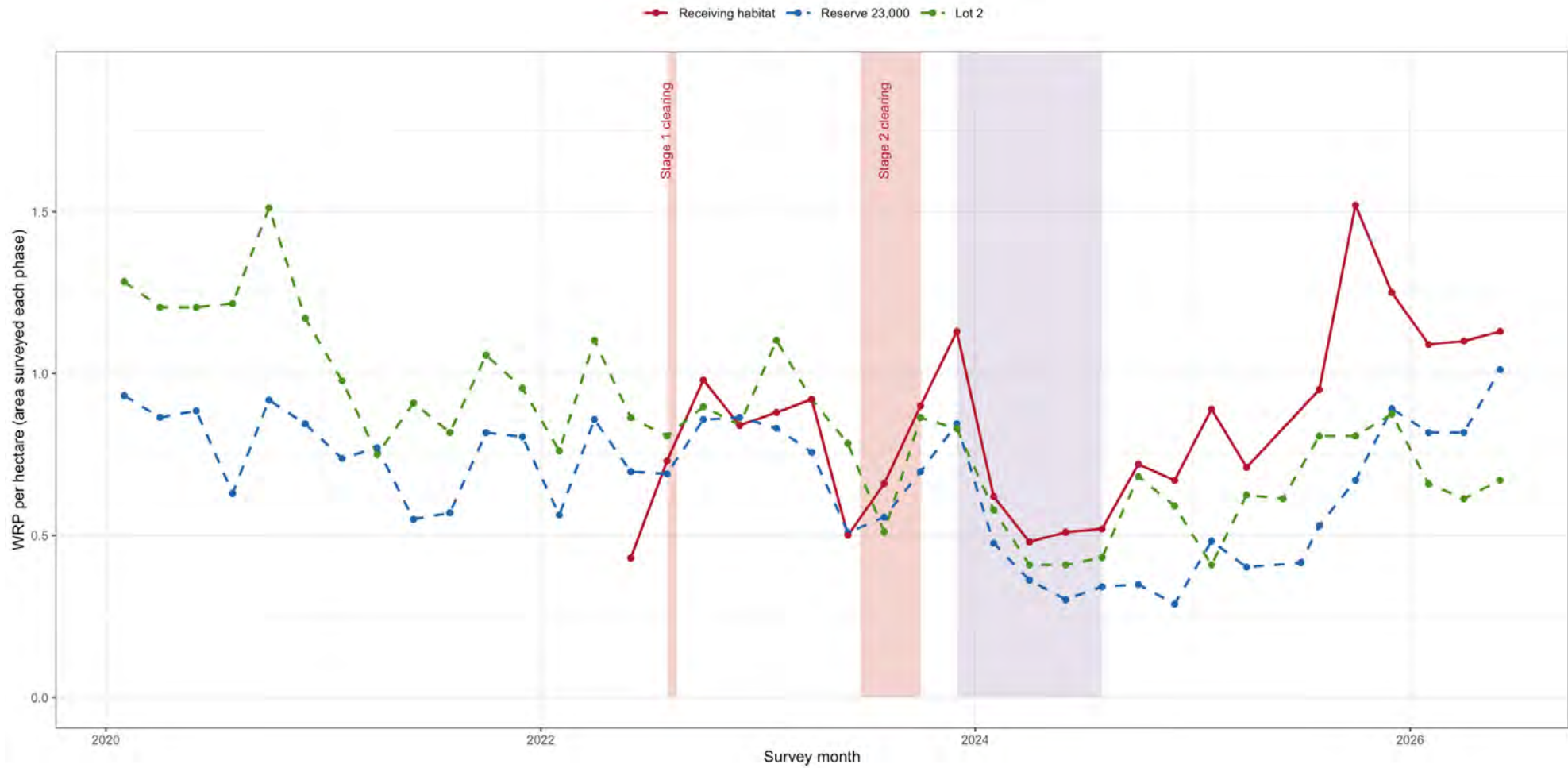


Figure 3: WRP density (per hectare) in the receiving habitat against the two reference sites. The receiving series commences June 2022, when sustained monitoring of those sites began; the two reference sites are shown across their full monitoring history commencing February 2020. Red bands mark the Stage 1 (2–18 Aug 2022) and Stage 2 (22 Jun–2 Oct 2023) clearing windows; the purple band covers the duration of suppressed density related to the 2023/24 hot-dry summer where both reference sites fall below the typical range.

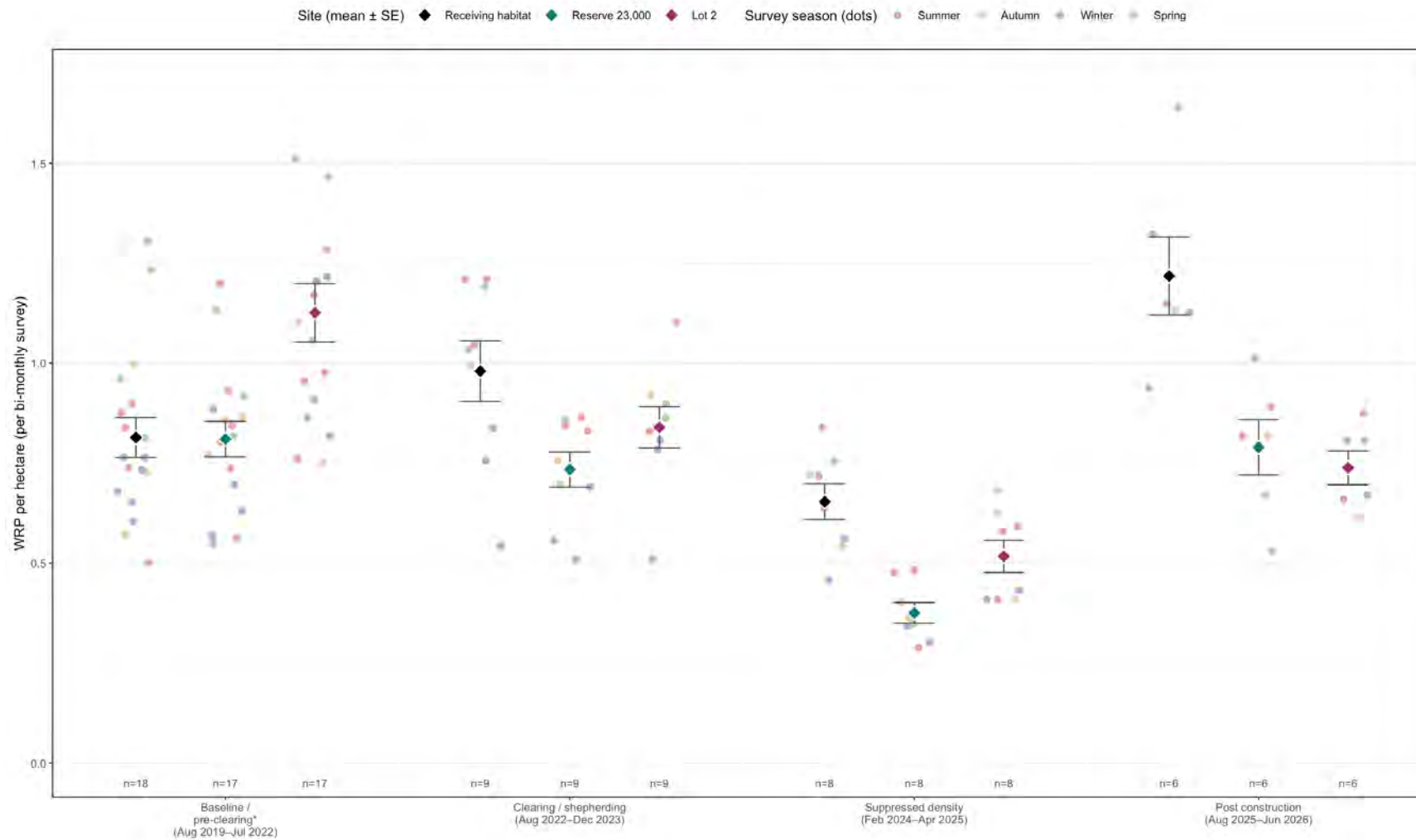


Figure 4: WRP density (per hectare) by period (mean $\pm$ SE (range)) across the bi-monthly phases. Each dot is one survey, coloured by the season it fell in. Definitions of each period are provided in the body of the report.

Receiving Habitat Synopsis

Against the background of typical seasonal pattern in abundance and the impacts of clearing, rainfall and temperature in modifying that typical pattern, this section synthesises the receiving habitat monitoring together as a plain account of what happened to the WRP population as the corridor was cleared and Stage 1 construction completed, and sets the results against the outcome required by Condition 6-2.

Throughout, density equals the number of Western Ringtail Possums counted within the area of the receival sites actually surveyed during each bi-monthly survey, that is, counts per hectare surveyed. The surveyed footprint has changed over time, as access to private land within the receival sites was granted or later withdrawn; density is used in preference to raw counts precisely because it remains comparable between visits even as the surveyed area changed.

To achieve this, counts are aggregated into five discrete time periods to represent significant milestone events and to provide a rationale for deviations from the “typical” seasonal patterns:

1. Baseline / pre-clearing (Aug 2019 – Jul 2022) - the pre-disturbance period, before any clearing. The two reference sites were surveyed throughout; the receiving habitat was not surveyed, so its baseline is taken from the contiguous Category 1 patch counts, the receiving sites being *defined* as habitat contiguous with the patches. This gives a baseline of 0.81 ± 0.05 WRP/ha ($n = 18$), the same as Reserve 23,000 (0.81) and below Lot 2 (1.13) over the same period (Table 3, Figure 4).
2. Clearing / shepherding (Aug 2022 – Dec 2023) - spans both clearing stages (Stage 1, August 2022; the Gelorup access track, April–May 2023; and Stage 2, June–October 2023), when possums were displaced and shepherded out of the cleared footprint into the adjoining receiving habitat. From this period onward the receiving-habitat represents the *functional receiving habitat* equivalent to the Receiving habitat plus the uncleared Patches that also function as receiving habitat. During clearing, WRP retracted back into the undisturbed parts of their home range within the Receiving habitat, which the GPS collars showed directly, and the density series imply. Across the clearing / shepherding period (the 2023 clearing stages) the Receiving habitat average density increased to 0.98 possums per hectare which was greater than at either Reserve 23,000 (0.73) and Lot 2 (0.84), both of which had declined over the same period (Table 3, Figure 4).
3. Suppressed density (Feb 2024 – Apr 2025) - the period over which density was suppressed at every site by the regionally hot and dry 2023/24 summer, evidenced by the reference sites falling in step and detailed elsewhere. During this period, the Receiving habitat averaged 0.65 ± 0.05 WRP/ha, remaining above both references (0.38, 0.52).
4. Post construction (Aug 2025 – Jun 2026) - after construction, during the apparent recovery of the populations at the reference sites and in the (functional) receiving habitat. The receiving habitat reached an average of 1.22 ± 0.10 WRP/ha, compared to 0.79 ± 0.07 (Reserve 23,000) and 0.74 ± 0.04 (Lot 2) and about 1.5 times its baseline.

Table 3: WRP density (per hectare) (mean $\pm$ SE (range)) by period across the bi-monthly phases.

Period	Receiving habitat	Reserve 23,000	Lot 2
Baseline / pre-clearing* (Aug 2019 – Jul 2022)	0.81 ± 0.05 (0.50–1.30)	0.81 ± 0.04 (0.55–1.20)	1.13 ± 0.07 (0.75–1.90)
Clearing / shepherding (Aug 2022 – Dec 2023)	0.98 ± 0.08 (0.54–1.21)	0.73 ± 0.04 (0.51–0.86)	0.84 ± 0.05 (0.51–1.10)
Suppressed density (Feb 2024 – Apr 2025)	0.65 ± 0.05 (0.46–0.84)	0.38 ± 0.03 (0.29–0.48)	0.52 ± 0.04 (0.41–0.68)
Post construction (Aug 2025 – Jun 2026)	1.22 ± 0.10 (0.94–1.64)	0.79 ± 0.07 (0.53–1.01)	0.74 ± 0.04 (0.61–0.88)

Condition 6-2 of Ministerial Statement 1191 states:

“Abundance and persistence of the western ringtail possum in the receival sites returns to pre-disturbance levels within a maximum of fifteen (15) years from the commencement of construction.”

In the context of the Condition, the term “levels” is interpreted to mean the range of (seasonal) density values typical of “pre-disturbance”, expressed as an average (here estimated as 0.81 ± 0.05 WRP/ha for the receival sites; Table 3, Figure 4). We have had to resort to density because the changing access permissions preclude a like-for-like comparison of abundance. To assess whether density “returns to” this level, we then draw on six surveys spanning both the post-construction phase (across all seasons) and the period after the abnormal impact of the hot, dry summer of 2023/24, over which the receival sites yielded an average of 1.22 ± 0.10 WRP/ha (Table 3).

Because the receival sites were not strictly surveyed before clearing, this is compared against two measures of “pre-disturbance”: the aggregated Patch and Receiving pre-clearing baseline, and the pre-clearing baseline of the Reference site for BORR South, Reserve 23,000. Both yielded comparable densities of 0.81 WRP/ha during the pre-clearing surveys. The two trajectories then moved in opposite directions during clearing, with Reserve 23,000 declining marginally and the Receiving habitat increasing as displaced animals moved into it (as intended). Immediately after clearing both averages declined, along with Lot 2 (Figure 4), under a regional, climate-driven impact. The WRP population in both areas has since recovered: Reserve 23,000 has yielded an average density over the last year equivalent to its pre-clearing baseline, and the Receiving habitat a density 1.5 times higher than baseline.

Mark-resight study

For the period up to December 2023, the transponder mark-recapture/resight study was largely superseded by the comprehensiveness of the GPS collaring study. This is because the fate of collared animals (n=107) has been studied intensively before, during, and after clearing, both within the clearing area and in the receiving habitat (where access was permitted). We estimate that the total number of WRP captured represents approximately 90% of the individuals available for capture in the accessible parts of the receiving habitat and throughout the clearing footprint. Following the completion of the telemetry study, the first round of captures for the mark-recapture study was proposed for August 2024. However, we note that the number of individuals within accessible areas of the Gelorup Corridor has declined markedly during the prolonged hot, dry summer (Figure 1), consistent with observations in the BORR South reference site (Figure 2).

During the 2025-2026 reporting period there were no resighting’s of previously marked individuals, and no recaptures were attempted in the qualifying receiving habitat on private property.

WRP Habitat Condition Survey

Aerial 3D-imagery of the development envelope, receiving habitat and part of the BORR South reference site (Shire of Capel’s Reserve 23,000) was captured prior to commencement of clearing (July 2022). Subsequently, the aerial survey was expanded to include the entirety of the BORR S reference site and flights undertaken on 23rd September 2025 and 7th March 2026.

The following datasets have been captured:

- 25cm SpecTerra multispectral imagery (4-band) with co-registered 6 cm high resolution RGB imagery.
- Digital Surface Models (DSM) and Digital Terrain Models (DTM).

- Delineation and segmentation of canopy polygons with height, area and Plant Cell Density (PCD) / Normalised Difference Vegetation Index attributes.

The SpecTerra aerial imagery (2022–2026) permits a check of the WRP density trajectory in the receival sites against a measured record of the canopy, rather than assuming the habitat stayed intact. Across the Receival site footprint, canopy cover has remained essentially stable, namely 62.0% at the July 2022 baseline and between 60% and 66% at every capture since, retaining 94–99% of the 2022 extent through clearing, the 2023/24 climate impact and into the recovery period. Because the Receival site canopy was substantially retained throughout, the density changes cannot be attributed to habitat loss within the receival sites. In particular, the density decline over 2024 occurred with no material canopy loss in the Receival sites and was shared by the two uncleared Reference sites (R23,000 and Lot 2), confirming it as a regional, climate-driven impact rather than a habitat effect. Equally, the subsequent return of density to 1.22 WRP/ha at the receival sites occurred against a stable, and slightly increasing, canopy base, so it reflects a genuine return of animals to habitat that remained available to them, and not simply a shrinking survey area beneath a constant population.

Conclusions

Declines in WRP abundance across the monitored sites, as measured by the bi-monthly counts, appears to be driven for the most part by climate. The decline recorded from February 2024 followed the hot, dry 2023/24 summer and was mirrored in the two uncleared reference sites, which we suggest is more consistent with a regional climatic driver than with an effect of the road. Abundance has since increased at all sites, and breeding has again been recorded.

Within the receiving habitat, the results broadly follows the outcome expected based on the shepherding approach (and confirmed by telemetry) and the impact of climate (shared with the reference sites): there was a measured increase during clearing as animals were displaced from the clearing footprint, a decline through the 2023/24 period shared with the reference sites, and a subsequent recovery to around 1.22 WRP/ha, which is at or above the pre-disturbance baseline (0.81) and the two reference sites. Canopy within the receiving habitat appears to have been largely retained over this period (of the order of 94–99%), so it seems unlikely that these changes reflect habitat loss.

Yours sincerely,

Biota Environmental Sciences Pty Ltd

Roy Teale
Director / Principal Zoologist

Appendix A: Standard Western Ringtail Possum Survey Methods

To document WRP seasonal population variation and to guide management actions, censuses within the BORR South Study Area and the BORR South Referral Boundary have been undertaken at bi-monthly (two-monthly) intervals since August 2019. Counts within the BORR South Reference Site (Reserve 23,000) commenced in early November 2019 and were then timed to match those undertaken in the BORR South Study Area (i.e., from December 2019 and then bimonthly). To simplify reporting, the BORR South Study Area and Referral Boundary have been divided into Patches.

A strip-sampling approach using 20 m wide strips, was adopted in each of the survey areas. This was preferred over distance sampling for a number of reasons, mainly that many habitat remnants were too small to implement robust distance sampling. However, the width of the strip was guided by the detection function developed from the regional distance sampling program (based on thousands of detections) which indicated a probability of detection of 95% within 10 m either side of an observer (and even higher in the more open habitat characteristic of the BORR study sites). To obtain accurate and repeatable counts of the number of possums utilizing the BORR South Study Area and Referral Boundary, each section of habitat (including the Reserve 23000 Reference Site) was divided into 20 m strips.

These strips were pre-loaded onto map imagery and displayed on tablets (UniStrong UT 10) with a GPS accuracy typically to within 1.5 m. Each strip was surveyed by an appropriately experienced zoologist walking centrally through the strip at a slow steady pace (typically less than 1 km/hr), using a high-powered head torch (Led Lenser XEO 19R model) to detect animals. In open pasture with scattered trees, searching individual paddock trees was undertaken in favour of searching strips. In addition to the Western Ringtail Possum, observations of the Common Brushtail Possum and Brush-tailed Phascogale were also recorded.

Appendix B: Survey Patches

