APPENDIX J. ANNUAL KOALA MONITORING REPORT

Annual Koala Monitoring Report

Addendum to the Moorebank Annual Flora and Fauna Monitoring Report

13 May 2026

Version Control

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1	13/05/2026	MIP Koala Annual Monitoring Report	[redacted]	

Contents

Acronyms and Abbreviations

Acronym	Definition
DBH	Diameter at Breast Height
KMA	Koala Management Area
MIP	Moorebank Intermodal Precinct
MPE	Moorebank Precinct East
MPW	Moorebank Precinct West
NSW	New South Wales
PCT	Plant Community Type
PKFT	Preferred Koalas Feed Tree
SAT	Spot Assessment Technique
VIS	Vegetation Integrity Scores

1 Introduction

As part of the Moorebank Intermodal Precinct (MIP), two Biobank offset areas were created, Wattle Grove to the east (MPE) and Georges River section to the west (MPW). In accordance with the Moorebank Precinct West conditions of approval, a Koala Management Plan (Cumberland Ecology, 2020) was developed and implemented once the MPW site became operational. Monitoring of Koala populations are to be undertaken as a critical component of the ongoing management of this threatened species at Moorebank. The monitoring will enable actions to be taken if a decline in Koalas is observed across the site or if movement is obstructed. It will also assist in informing revegetation and weed control.

As the MPW facility became operational on 15 May 2024, baseline Koala monitoring surveys were undertaken during the summer of 2024-2025 to commence the operational monitoring and establish permanent monitoring locations within the MPE and MPW offset areas. These baseline surveys provided an assessment of the existing koala habitat condition and koala use at these locations. The *Baseline Koala Monitoring Report* (Arcadis, 2025) was prepared to document these baseline surveys, as well as outline methodology for future annual monitoring. This report details the first annual koala monitoring (Year 1) undertaken in summer 2025-2026, and provides a comparison between this year's results, and those of the baseline koala monitoring surveys.

2 Methods

The following sections detail the survey methodology utilised for the annual Koala monitoring survey, undertaken in January and February 2026. Methodology utilised for the current surveys follows those of the *Baseline Koala Monitoring Report* (Arcadis, 2025), which established permanent monitoring locations within the MIP offset sites based on recommendations provided in the *Moorebank Precinct West Stage 2 Koala Management Plan* (Cumberland Ecology, 2020) and methodology detailed in *'Koala (Phascolarctos cinereus) Biodiversity Assessment Method Survey Guide'* (DPE, 2022). A total of 26 permanent Koala monitoring sites were established during baseline surveys, with sites established in areas where Koala feed tree species were present.

The New South Wales (NSW) Koala Recovery Plan describes seven Koala Management Areas (KMAs) located across NSW, based on landscape characteristics. The Koala feed tree species differ between the seven NSW management areas, with the MIP located within the Central Coast Koala Management Area. The coordinates and central tree species of each of the permanent monitoring locations are detailed in Table 2-1, and shown in Figure 2-1:.

All 26 monitoring locations were revisited during the 2025-2026 monitoring period.

Table 2-1: Permanent monitoring site details, including central tree species and geographic coordinates (GDA 2020)

Site ID	Centre tree species	Longitude	Latitude
1	*Eucalyptus botryoides x saligna*	150.9194316	-33.94385669
2	Forest Red Gum (*Eucalyptus tereticornis*)	150.9185632	-33.94577864
3	Lemon-scented Gum (*Corymbia citriodora*)	150.9167464	-33.9482481
4	Forest Red Gum (*Eucalyptus tereticornis*)	150.9164945	-33.95074482
5	Forest Red Gum (*Eucalyptus tereticornis*)	150.9133985	-33.95233547
6	*Eucalyptus botryoides x saligna*	150.9133714	-33.95470615
7	*Eucalyptus botryoides x saligna*	150.9130219	-33.95720291
8	*Eucalyptus botryoides x saligna*	150.9134071	-33.95948048
9	*Eucalyptus botryoides x saligna*	150.9142749	-33.96372164
10	Parramatta Red Gum (*Eucalyptus parramattensis*)	150.9218526	-33.96165702
11	Forest Red Gum (*Eucalyptus tereticornis*)	150.9297746	-33.95281469
12	Parramatta Red Gum (*Eucalyptus parramattensis*)	150.9325846	-33.95288577
13	Scribbly Gum (*Eucalyptus racemosa*)	150.9353146	-33.95310377
14	Parramatta Red Gum (*Eucalyptus parramattensis*)	150.9297098	-33.95506026
15	Scribbly Gum (*Eucalyptus racemosa*)	150.9321961	-33.9547095
16	Scribbly Gum (*Eucalyptus racemosa*)	150.9349739	-33.95510518
17	Parramatta Red Gum (*Eucalyptus parramattensis*)	150.9291809	-33.95737755
18	Scribbly Gum (*Eucalyptus racemosa*)	150.9328039	-33.95774268
19	Scribbly Gum (*Eucalyptus racemosa*)	150.9290531	-33.95979647
20	Scribbly Gum (*Eucalyptus racemosa*)	150.9318956	-33.95962727
21	Scribbly Gum (*Eucalyptus racemosa*)	150.9271948	-33.96239298
22	Scribbly Gum (*Eucalyptus racemosa*)	150.9289692	-33.96210604
23	Scribbly Gum (*Eucalyptus racemosa*)	150.9311751	-33.96195368

Site ID	Centre tree species	Longitude	Latitude
24	Narrow-leaved Ironbark (*Eucalyptus crebra*)	150.9248497	-33.96396587
25	Parramatta Red Gum (*Eucalyptus parramattensis*)	150.9268958	-33.96389432
26	Parramatta Red Gum (*Eucalyptus parramattensis*)	150.930236	-33.96338924

2.1 Spotlighting

Nocturnal spotlighting surveys were undertaken in both the Wattle Grove and Georges River Corridor offset areas, and repeated sections of the site that were surveyed via spotlighting during the baseline Koala surveys. Transects were undertaken along existing access tracks within the offset areas to allow for easy repeatability, and for greatest coverage of the site per survey. While Koalas can be surveyed year-round, wet and windy conditions were avoided for nocturnal transects as it could make detection more difficult.

Transects were primarily completed on foot, however vehicle-based transects were also conducted along the Georges River Corridor and southern extent of the Wattle Grove offset area. Ecologists used high-powered handheld torches to slowly scan vegetation for eyeshine, walking at an average pace of 10 minutes per 100 metres or <5 kilometres per hour when travelling in a vehicle.

All nocturnal spotlighting transects were recorded using a GIS-enabled iPad, and all species encountered were identified using visual observation and/or call with a species list generated for each transect. Observations of Koalas, or any other threatened species, had date, time, and geographic coordinates recorded using a GIS-enabled tablet or smartphone. All spotlighting transects were undertaken in dry and calm conditions. Locations of spotlighting surveys are shown in Figure 3-1:.

2.2 Rapid Spot Assessment Technique

Rapid Spot Assessment Technique (SAT) surveys were undertaken at each Koala monitoring site to assess Koala presence through the scat detection. The Rapid-SAT survey technique is a modification of the Phillips and Callaghan (2011) SAT survey methodology, which includes selectively searching around the base of Koala feed trees for the presence of Koala scats. Table 2-2 presents the tree species identified within the Moorebank offset sites that are recognised as Koala feed trees for the Central Coast Management Area.

At each of the 26 Koala monitoring sites, the following methodology was followed:

1. Locate central tree for the rapid-SAT, identified as the tree closest to the blue stake demarcating the permanent Koala monitoring site. Record Rapid-SAT survey date, time, and central tree location on a GIS-enabled device.

2. Scan the canopy of the tree for Koalas, and the trunk of the tree for scratches that may indicate Koala use. If no Koala is identified, search a 1-metre radius from the base of the tree for Koala faecal pellets. This includes inspecting the undisturbed groundcover, before disturbing any leaf litter or grass to thoroughly inspect the area.

3. Move outwards from the centre tree and repeat step 2 under the next 6 closest koala feed trees (as identified in Table 2-2:) with a diameter at breast height (DBH) greater than 30 centimetres.

If a Koala, or Koala faecal pellets were identified, details of the observation were recorded on an GIS-enabled device. This included geographic location, time and date of observation, observation type, and tree species, DBH, and height.

Table 2-2: Tree species with demonstrated use by Koala in the Central Coast Koala Management Area that are known or likely to occur in the Moorebank Intermodal Precinct offset areas

Food trees identified by the *Koala Recovery Plan* (OEH, 2024)	**Regionally significant tree species identified in *A review of koala tree use across New South Wales*** (OEH, 2018)
Primary food tree species	**Species with regional high use**
• Tallowwood (*Eucalyptus microcorys*) • Swamp Mahogany (*E. robusta*) • Forest Red Gum (*E. tereticornis*) • Ribbon Gum (*E. viminalis*) • Parramatta Red Gum (*E. parramattensis)* • Cabbage Gum (*E. amplifolia*)	• Grey Gum (*E. punctata*)
Secondary food tree species	**Species with High use**
• Grey gum (*E. punctata*) • Woollybutt (*E. longifolia*) • Grey box (*E. moluccana*)	• Woollybutt (*E. longifolia*) • Forest Red Gum (*E. tereticornis*) • Parramatta Red Gum *(E. parramattensis)* • Swamp Mahogany (*E. robusta*) • Ribbon Gum (*E. viminalis*) • Scribbly Gum (*E. racemosa)*
Supplementary species	**Species with significant use**
• Thin-leaved Stringybark (*E. eugenioides*)	• Grey Box *(E. moluccana)* • Tallowwood (*E. microcorys*) • Narrow-leave Ironbark *(E. crebra)* • Southern Mahogany *(E. botryoides)* • Narrow-leaf Cabbage Gum (*E. amplifolia*) • Red Ironbark (*E. fibrosa*) • Red Ironbark (*E. sideroxylon*) • Red Bloodwood (*Corymbia gummifera*)

2.3 Habitat monitoring

Koala habitat monitoring was undertaken to assess broad-scale changes in vegetation condition within the offset areas. Habitat monitoring aims to detect changes in habitat quality across monitoring years, and in particular changes that may impact Koala use over time.

Habitat monitoring was undertaken in line with the methodology outlined in the *Baseline Koala Monitoring Report* (Arcadis, 2025). Rapid habitat assessments were completed during Rapid-SAT surveys, at each Koala monitoring site. From the stake demarcating the site, a 20 x 20 metre quadrat was assessed, looking 20 metres south and 20 metres east from the stake. Two plots – sites 3 and 6 however had cleared areas to the south, so the plot was undertaken facing north instead. The following vegetation characteristics were recorded:

- Eucalypt canopy – species and percentage of cover.
- Mid-storey – species and percentage of cover (below 8m).
- Ground cover – dominant species and percentage of cover.
- Leaf litter – percentage of cover.
- Estimated cover of weeds.

- Any other changes or issues on site.

In addition to rapid assessment data collected at each of the habitat monitoring points, existing vegetation monitoring data from across the biobank sites was reviewed to assess broad-scale changes in vegetation condition over time. Data collected for vegetation integrity score (VIS) plots undertaken for monitoring of BA341 and EPBC flora offset sites were reviewed for the purpose of informing changes to Koala habitat across the site

2.4 Photo point monitoring

To support the rapid habitat assessments, Arcadis ecologists obtained photos of a south and north orientation at each of the permanent monitoring locations to be used to compare structural vegetation changes across the offset sites. This method provides a visual record of changes, allowing for easy assessment of project progress and effects of management for Koala conservation.

2.5 Incidental observations

Incidental observations can make up valuable data for recording the presence and movement of Koalas across the biobank site. A system of reporting of any road kills/injuries has been implemented so that all on-site personnel are aware of the necessary procedures and the significance of such information. This reporting system extended to the sightings of any individuals within the project boundary and offset areas. Information recorded included:

- Location of sighting/animal (location subsequently to be mapped),
- Status of animal (live in tree, injured etc),
- If injured/dead, cause of injury or death; and
- Identification of any relevant factors contributing to the status of the animal.

Camera traps were also deployed annually across the offset sites to monitor connectivity features in the site and pest animal populations. Reports of Koala records on these cameras are captured in the Moorebank Operational Monitoring Annual Monitoring Report (Arcadis, 2026). Observations of Koala from the report are to be included in incidental observation data.

The BA341 biobank contractor is to be contacted on an annual basis to get a summary of works undertaken to improve Koala habitat and request any Koala sightings/observations from the previous year.

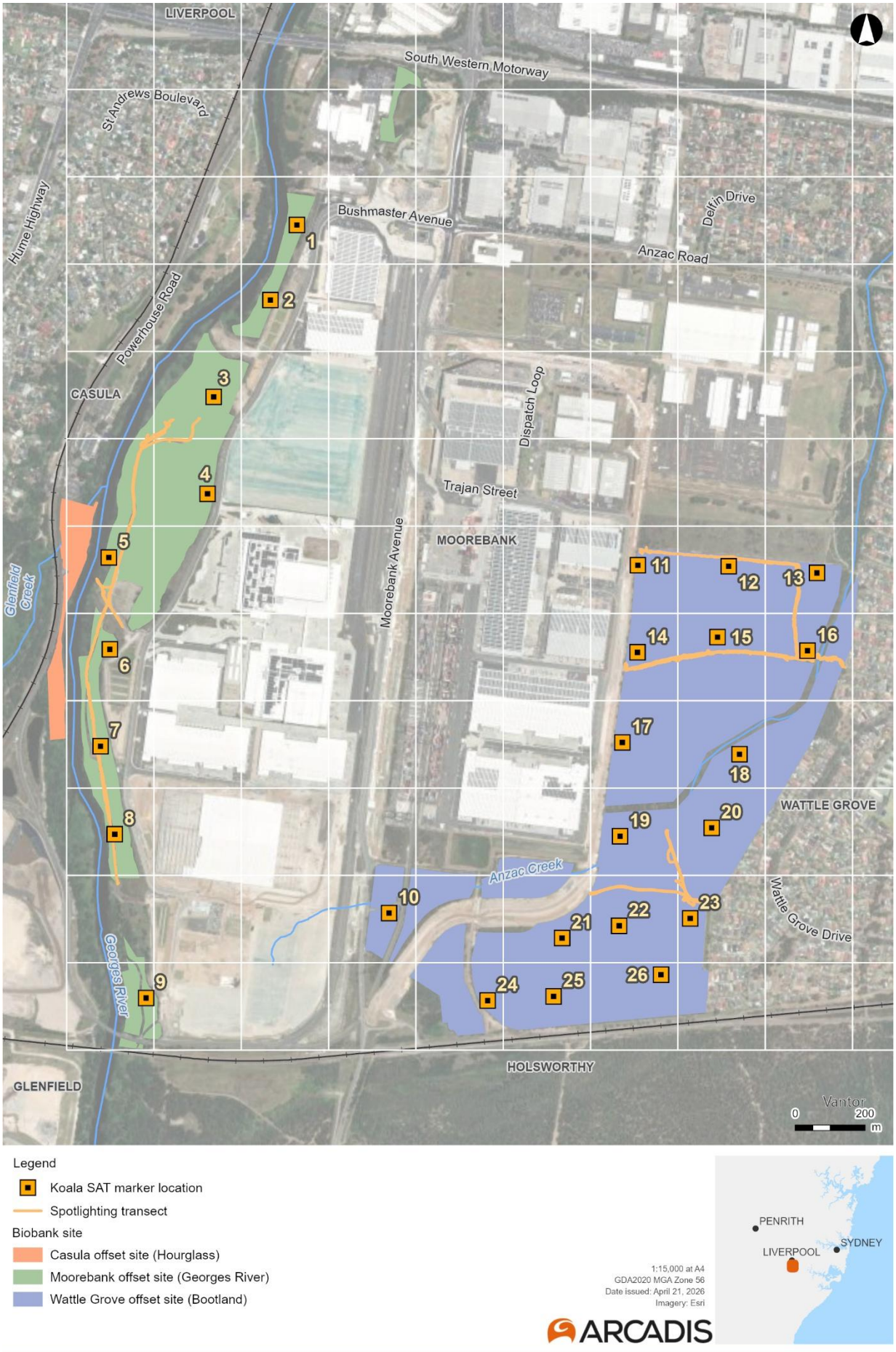

Figure 2-1: Map showing the locations of Koala monitoring surveys

3 Results

Surveys confirmed Koala presence in the Wattle Grove offset area. During the monitoring period, two observations of Koalas were recorded, as well as the presence of Koala scats. The following provides a summary of the approaches used.

3.1 Rapid Spot Assessment Technique

Koala scats were detected at two locations within the Wattle Grove offset area. Koala faecal pellets were found at the base of a Grey Gum (*E. punctata*) during surveys at Site 10 (Plate 3-1:), and at the base of a Narrow-leaved Ironbark (*E. crebra*) at Site 24 (Figure 3-1).

Table 3-1 shows the centre trees and GPS location for each Rapid-SAT site.

3.2 Spotlighting

Koalas were detected on one occasion during spotlighting surveys on 14 January 2026. One individual was observed in a tree along the central east-west access track of the Wattle Grove offset area (Plate 3-2:, Figure 3-1:*).* No individuals were observed during surveys in the Georges River Corridor offset area.

3.3 Incidental observations

One Koala was observed incidentally by Arcadis ecologists during surveys on 6 November 2025, with an individual observed sitting in an ironbark near the central east-west access track of the Wattle Grove offset area (Plate 3-3:).

Figure 3-1: Map of the Koala scats or individuals recorded during the monitoring period

Plate 3-1: Example Koala scat found at the base of a E. punctata near Anzac Creek in Wattle Grove offset area

Plate 3-2: Koala observed during spotlighting surveys, near central (east-west) access track of Wattle Grove offset area

Plate 3-3: Koala observed incidentally near central (east-west) access track of Wattle Grove offset area

Table 3-1: Results of Koala SAT surveys

Site ID	Centre tree species	Koala scat detected	
		Baseline surveys	Year 1
1	*Eucalyptus botryoides x saligna*	No	No
2	Forest Red Gum (*Eucalyptus tereticornis*)	No	No
3	Lemon-scented Gum (*Corymbia citriodora*)	No	No
4	Forest Red Gum (*Eucalyptus tereticornis*)	No	No
5	Forest Red Gum (*Eucalyptus tereticornis*)	**Yes**	No
6	*Eucalyptus botryoides x saligna*	No	No
7	*Eucalyptus botryoides x saligna*	No	No
8	*Eucalyptus botryoides x saligna*	No	No
9	*Eucalyptus botryoides x saligna*	No	No
10	Parramatta Red Gum (*Eucalyptus parramattensis*)	No	**Yes**
11	Forest Red Gum (*Eucalyptus tereticornis*)	**Yes**	No
12	Parramatta Red Gum (*Eucalyptus parramattensis*)	No	No
13	Scribbly Gum (*Eucalyptus racemosa*)	No	No
14	Parramatta Red Gum (*Eucalyptus parramattensis*)	No	No
15	Scribbly Gum (*Eucalyptus racemosa*)	**Yes**	No
16	Scribbly Gum (*Eucalyptus racemosa*)	No	No
17	Parramatta Red Gum (*Eucalyptus parramattensis*)	**Yes**	No
18	Scribbly Gum (*Eucalyptus racemosa*)	No	No
19	Scribbly Gum (*Eucalyptus racemosa*)	No	No

Site ID	Centre tree species	Koala scat detected	
		Baseline surveys	Year 1
20	Scribbly Gum (*Eucalyptus racemosa*)	No	No
21	Scribbly Gum (*Eucalyptus racemosa*)	**Yes**	No
22	Scribbly Gum (*Eucalyptus racemosa*)	No	No
23	Scribbly Gum (*Eucalyptus racemosa*)	No	No
24	Narrow-leaved Ironbark (*Eucalyptus crebra*)	**Yes**	**Yes**
25	Parramatta Red Gum (*Eucalyptus parramattensis*)	No	No
26	Parramatta Red Gum (*Eucalyptus parramattensis*)	No	No

3.4 Habitat monitoring

The following provides an overview of the habitat recorded across the sites. Figure 3-2 shows the overall mean cover of canopy, mid-storey and ground layer from baseline surveys and surveys completed during 2025 monitoring period. A full list of the species recorded, and per cent cover of each stratum at each Koala monitoring site are shown in Appendix B. Results of the Year 1 habitat monitoring were compared with the results of the baseline surveys (Appendix B of the *Baseline Koala Monitoring Report*). A minor (<5 per cent) decrease in cover was observed for all stratums. This is discussed further in Section 4.1.1.

3.4.1 Canopy cover

The preliminary habitat assessments identified that the Wattle Grove and Georges River Corridor offset sites contained differing vegetation and habitat features, however both sites have the potential to support Koala. Narrow-leaf Scribbly Gum (*Eucalyptus racemosa*) was the most encountered canopy tree recorded across the Wattle Grove monitoring sites, with patches of Parramatta Red Gum (*E. parramattensis*), Narrow-leaved Ironbark (*E. crebra*), Broad-leaved Ironbark (*E. fibrosa*), Forest Red Gum (*E. tereticornis*) and Grey Gum (*E. punctata*) (see Plate 3-4 and Plate 3-5). Habitat assessments along the Georges River Corridor showed a canopy dominated by *E. botryoides x saligna*, Forest Red Gum (*E. tereticornis*) and Broad-leaved Apple (*Angophora subvelutina*) (see Plate 3-6 and Plate 3-7).

3.4.2 Mid-storey cover

Species frequently encountered in the mid-storey of Wattle Grove included *Acacia decurrens, A. binervia, A. falcata, A. parramattensis, Bursaria spinosa, Hakea sericea, Melaleuca decora* and *M. nodosa*. Dense stands of *M. decora, M. nodosa, Banksia spinulosa* and *H. sericea* were frequently observed in the mid-stratum of the Wattle Grove sites. This dense cover has the potential to impede the movement of Koalas and should be monitored across the site for encroachment into other areas.

The Georges River mid-stratum included species such as *A. binervia, A. decurrens*. The Georges River has areas with a high cover of weeds including *Olea europaea sub cuspidate, Lantana camara, Ligustrum lucidum, Ligustrum sinense, Ochna serrulate* and *Pittosporum undulatum.* In previous years Lantana has made access to some sites along the river difficult, particularly while searching for scats within the dense leaf litter. The Georges River Corridor sites have been subject to clearing of Lantana, improving suitability for Koalas.

3.4.3 Ground cover

The ground cover at Wattle Grove largely consisted of patches of grasses such as *Themeda triandra, Imperata cylindrica, Entolasia stricta, Entolasia marginata, Aristida vagans* and *Austrostipa rudis*. Sedges such as *Lepidosperma laterale, Lepidosperma sp.* and *Cyathochaeta diandra* increasing in cover in areas closer to Anzac Creek towards the south of the site. The Georges River sites contained a grassy understory, including exotic species such as *Eragrostis curvula*.

3.4.4 Photo point monitoring

The images (shown in Appendix B) are to be taken annually to assist in evaluating the broad changes in vegetation structure over time, allowing a visual comparison of condition to support habitat assessment results. In comparing the Year 1 images to the baseline photo point images, provided in Appendix B of the *Baseline Koala Monitoring Report* (Arcadis, 2025), no significant variation between any sites is observed.

3.4.5 Additional vegetation monitoring assessments

Vegetation integrity scores (VIS) from Biodiversity Assessment Method monitoring plots, conducted as part of the *EPBC Threatened Flora Monitoring Report* (Arcadis, 2026), show continued improvement across all Plant Community Types (PCTs), all management zones, burnt areas, unburnt areas, areas that have been actively managed through weed removal and areas that have been passively managed. This indicated that, overall, management of the site is progressing toward the objectives of improved biological diversity and ecological function and will enhance opportunities for Koala conservation.

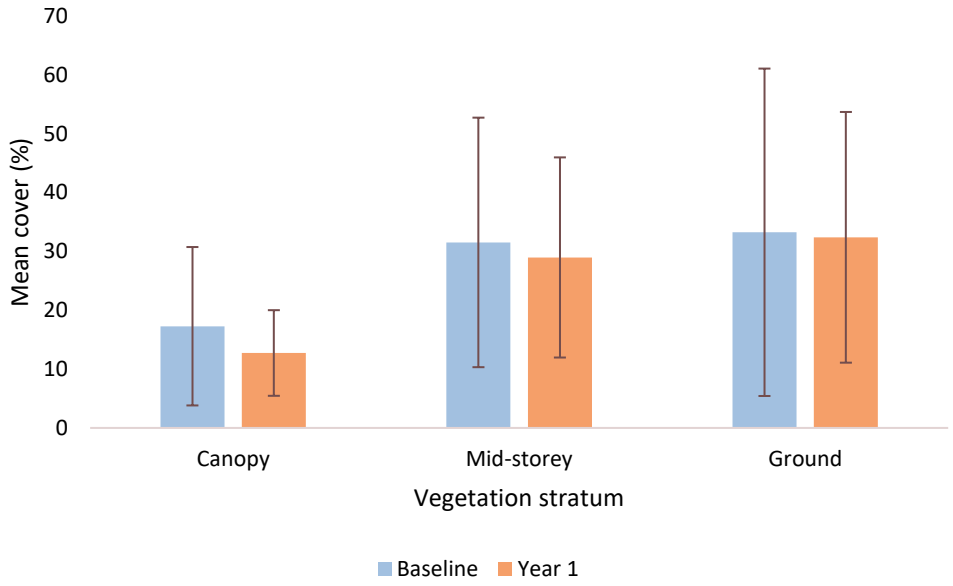

Figure 3-2: Mean (STD) foliage cover of each stratum across the Koala SAT sites

Plate 3-4: Wattle Grove sites typically consisted of a dominant canopy of Scribbly Gum (a listed preferred Koala Feed Tree), but the dense undergrowth may impede Koala movement in some area of site

Plate 3-5: Most sites consist of juvenile or maturing trees with narrow DBH

Plate 3-6: The Georges River Biobank site consists of Eucalyptus botryoides x saligna, Forest Red Gum and Broad-leaved Apple. Some areas have recently had the Lantana cleared as seen here which could improve Koala habitat

Plate 3-7: The Georges River contains less suitable habitat for Koalas, with areas of dense undergrowth of Lantana

4 Discussion and recommendations

This report outlines the results of the first year of annual Koala monitoring, following the baseline surveys undertaken by Arcadis during the 2024-2025 monitoring period. Monitoring methodology remained consistent with that outlined in the *Baseline Koala Monitoring Report* (Arcadis, 2025).

The habitat at the Moorebank Intermodal Precinct offset sites continue to contain rich resources for Koalas, with species of canopy trees recorded listed as preferred Koala feed trees in the Central Coast Koala Management Area. Both the Georges River and Wattle Grove offset sites contain access to permanent water which will support Koalas survival during extreme heat in summer.

The detection of Koalas and their scats across the biobank during baseline surveys and the first year of annual monitoring demonstrates that there is an existing population of Koalas within the offset sites, and conservation strategies should continue to be utilised to conserve this population.

4.1 Annual monitoring

Annual surveys using the Rapid-SATs and spotlighting as described in this report continue to be critical for understanding the population dynamics at Moorebank, and to assess if site use changes as vegetation matures and active management is implemented. This includes areas where revegetation and weed removal works have been undertaken.

Koala scat and sightings declined from baseline to Year 1 across Rapid-SAT surveys, spotlighting, and incidental reports. No koalas or scat were found at Georges River in Year 1, though both were recorded during the baseline monitoring. Ongoing construction, such as the Moorebank Avenue Realignment near Wattle Grove, may contribute to reduced detections at Wattle Grove and Georges River. However, detection numbers were relatively low even during the baseline surveys, so it is also possible that the surveys simply missed any existing individuals by chance, given the inherent variability in wildlife monitoring.

The continuation of annual Koala monitoring in future years will assist in developing increased understanding of Koala population dynamics across the Wattle Grove and Georges River Corridor areas.

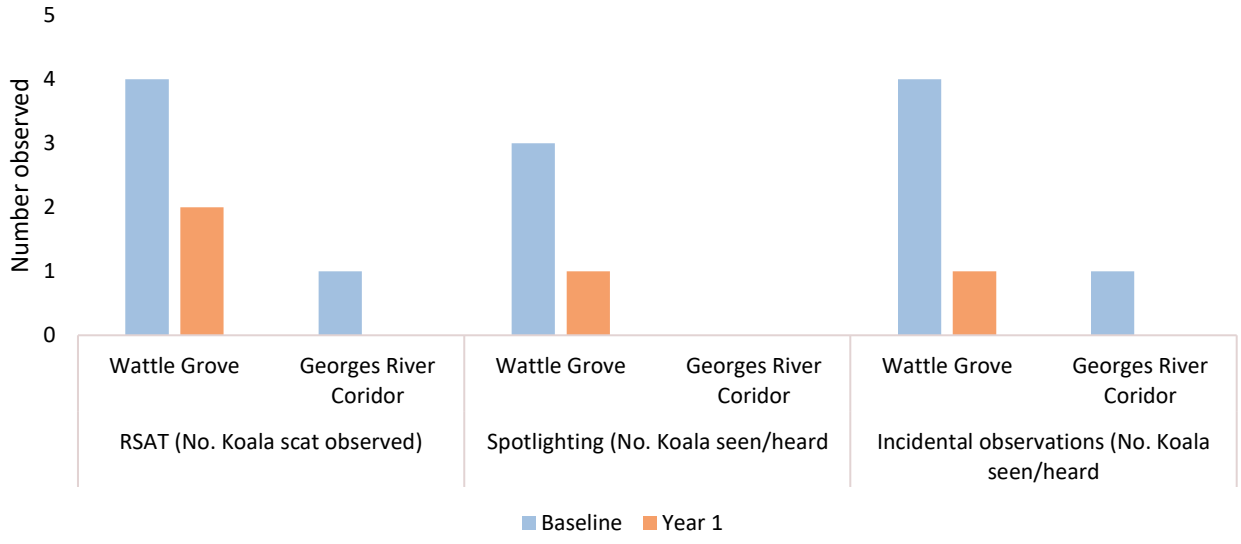

Figure 4-1: Koala and Koala scat observations between baseline and Year 1 surveys

Revegetation and management of weeds in the biobank areas will, over time, benefit Koalas by providing more foraging resources and reducing the number of weedy shrubs—such as Lantana (Lantana camara)—that can hinder their movement across the site. Habitat monitoring procedures described in the *Moorebank Precinct West Stage 2 Koala Management Plan* (Cumberland Ecology, 2020) and *Baseline Koala Monitoring Report* (Arcadis, 2025) are implemented to allow for the early detection of any issues within the biobanking

sites, to enable swift implementation of appropriate ameliorative measures. Such measures may include watering of plant stock during dry conditions, weed control and fire hazard reduction procedures.

4.1.1 Habitat monitoring

Mean understorey and ground covers across the rapid habitat assessment sites were found to be relatively consistent between baseline and Year 1 survey results, with relatively small decreases observed (31.52 per cent to 28.96 percent and 33.24 per cent and 32.39 per cent respectively). A decrease in the mean canopy cover was also observed between the baseline and Year 1 survey periods (17.28 per cent to 12.73 per cent).

The relatively small decrease in ground, mid-storey and canopy species per cent cover (less than 5 per cent), as well as annually improving VIS from Biodiversity Assessment Method monitoring plots, indicate that habitat within the Georges River and Wattle Grove offset sites continues to support the Koala population at Moorebank. Continual monitoring of habitat condition over time is important to allow for reliable trends to be observed within data, while considering potential for minor changes in cover between years to be attributed to variation in surveyor assessments. Should vegetation cover continue to reduce year on year, active management actions should be considered.

4.2 Measuring population

Critical to the management of the Koala population at Moorebank, is determining the number of Koalas that are currently present. Scat surveys and spotlighting have limitations in assessing population numbers due to variability in detection success. Scats typically can provide insight into how a site is being used spatially. Whereas spotlighting may only detect a small percentage of Koalas which are close to the selected transect. More recently, aerial drone surveys for Koalas have been used as a detection tool for land managers (Chad et al. 2021). The heat signatures of Koalas are easily detected allowing for a precise number of Koala individuals to be counted. The Moorebank site is relatively small and could be traversed by a drone in a single evening, therefore allowing for a more reliable count of the number of individuals within the site. Undertaking of drone surveys is recommended to allow for a complete population census, which is to be repeated once every five years.

4.3 Fencing

The existing fencing surrounding the Wattle Grove offset site currently protects Koalas from predation by dogs (Dissanayake et al. 2023) and vehicle strikes. However, the barbed wire on the top of the fence is likely to represent a threat to Koalas (and other fauna) if they climb the fence. During baseline field assessments, a dead Grey-headed Flying Fox (*Pteropus poliocephalus*), listed under the BC Act and EPBC Act, was observed entangled in the barbed wire fencing. Modification to the fence should include removal of barbed wire and the installation of Koala friendly overpass bridges (see Plate 4-1:) and gates (see Plate 4-2), to facilitate access in and out of the offset site which would ensure safe passage to the larger Holsworthy Reserve to the south. Details of the specific locations where these should be installed are noted in the original Koala Management Plan (Cumberland Ecology, 2020). In areas of high risk such as those in close proximity to the road, a floppy top fence may be required to help deter Koalas climbing.

Along the Georges River Corridor, there is also a need to continue to construct a fence that separates the offset site from the MPW operational facility. This will provide long-term benefits to the Koala population by protecting them from vehicle collisions and ensuring minimal disturbance as the development progresses.

Plate 4-1: Example of simple Koala bridge to allow for safe passage over a fence. Image Brisbane City Council

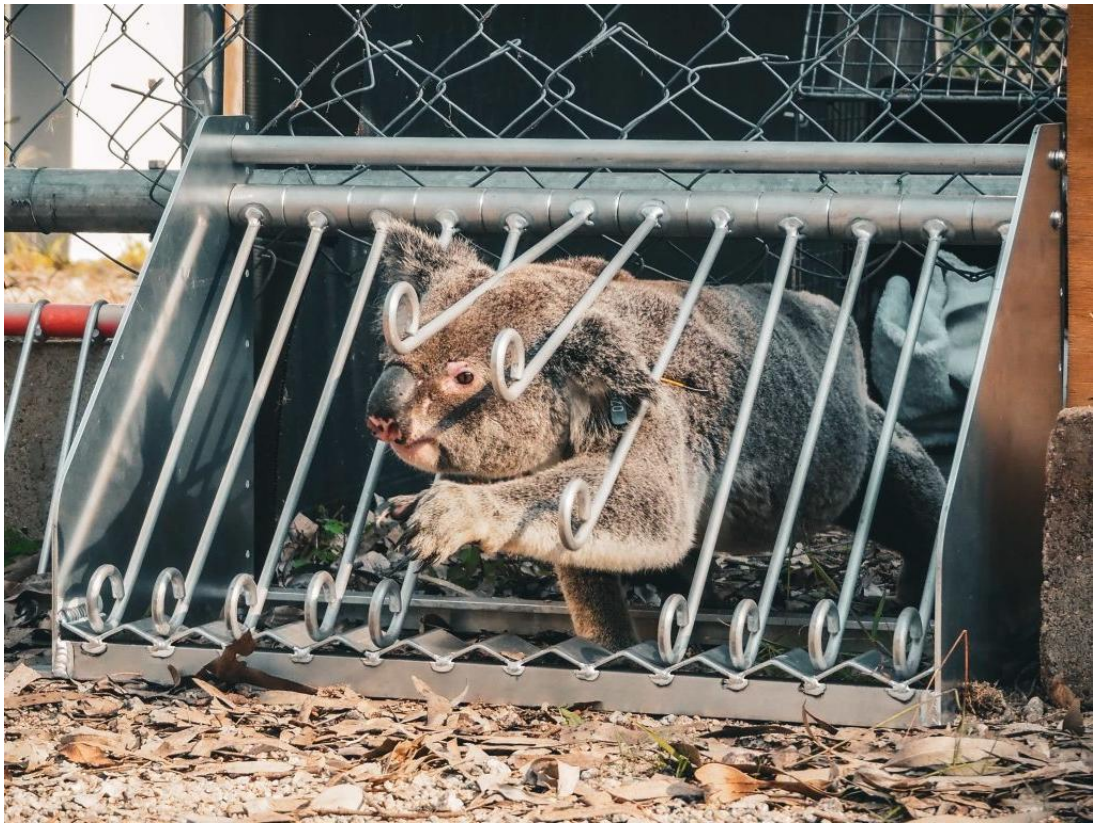

Plate 4-2: The 'Koala Doggy Door' has recently been implemented by Endeavour Veterinary Ecology with evidence of successful use by Koalas

4.4 Weed control

The infestations of Lantana along the Georges River Biobank continue to represent a challenge for habitat regeneration and Koalas. There is anecdotal evidence to suggest that Koalas may avoid dense thickets infested by Lantana (Tran and Maron, 2024). Thickets of weeds also prevent natural regeneration of eucalypts which are a critical food source to Koalas.

Very few instances of natural regeneration of eucalypts were observed occurring along the Georges River section. This may be due to dense weed cover that dominates the ground in many areas. Areas of recently cleared Lantana were observed along the northern sections of the Georges River offset area, however further weed control is required to mitigate the spread of Lantana. These areas should be considered for eucalypt revegetation to further improve the habitat condition,

Fortunately, there are no infestations of Lantana found in the Wattle Grove section of the site, and any emerging weeds in this area should be targeted immediately to prevent them becoming a significant threat. There is a particular risk with the Moorebank Avenue construction which could introduce exotic seeds or plant material through imported mulch and poor vehicle hygiene measures, and as such continual monitoring and eradication of weed species in these areas is recommended.

4.5 Key recommendations

Additional recommendations from this report are provided (Table 4-1) to compliment those already provided in the *Moorebank Precinct West Stage 2 Koala Management Plan* (Cumberland Ecology, 2020).

Table 4-1: Koala monitoring actions

No.	Action	Justification	Priority
1	Remove barbed wire	Barbed wire fencing to be removed from the Biobank and replaced with single strand wires which do not pose a risk to wildlife including Koalas. There is already existing evidence that barbed wire is having a negative impact on threatened species. Koalas are highly likely to either be entangled or injured while attempting to climb.	High
2	Safe fence crossings to be constructed	To ensure free access in and out of the Biobank sites, Koala friendly bridges or 'doggy doors' should be constructed at specific locations described in the original Koala Management Plan or as provided by a qualified ecologist.	Medium
3	Install fence on boundary of Georges River Biobank	A fence is required to ensure that the Georges River corridor Koala population is protected from vehicles and predator species (stray dogs).	Medium
4	Drone survey	Nocturnal drone surveys to be used to individually count the Koalas in the Moorebank Biobank every five years. Such data will be used to assist in evaluating changes to the population and be used to promote the conservation reserve objectives.	Low

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APPENDIX A. Rapid habitat assessment species and foliage cover list

Site ID	Canopy species	Canopy cover %	Dominant mid species	Mid cover %	Dominant ground species	Ground cover %	Leaf litter %
1	*Eucalyptus botryoides x saligna, E. parramattensis, Angophora floribunda*	10	*Acacia binervia, A. parramattensis*	30	Grass dominated with high leaf litter cover	40	50
2	*E. botryoides, E. parramattensis*	5	*A. binervia, Acacia decurrens, *Pittosporum undulatum*	8	Grass dominated with high leaf litter cover	20	70
3	*Corymbia citriodora*	3	Absent	0	Grass and weed dominated **Arundo donax, *Bidens pilosa, *Cirsium vulgare*	40	10
4	*E. crebra, E. parramattensis*	15	*A. binervia, A. decurrens, *P. undulatum, Styphelia sieberi*	15	Grass dominated with high leaf litter cover	20	20
5	*E. botryoides x saligna, E. tereticornis*	30	*Breynia oblongifolia, *Lantana. camara, *Ligustrum lucidum, *Olea europaea subsp. Cuspidate, *P. undulatum*	30	Leaf litter dominated **Tradescantia fluminensis*	5	80
6	*E. botryoides x saligna, E. tereticornis*	15	*A. binervia, A. decurrens*	20	Grass dominated with high leaf litter cover	10	50
7	*E. botryoides x saligna, Angophora subvelutina*	10	*A. binervia, *L. camara*	50	Grass understory *Entolasia marginata, *Eragrostis curvula*	20	50
8	*E. botryoides x saligna, A. subvelutina*	5	*A. binervia, A. decurrens, B. oblongifolia, *L. camara, *Ligustrum sinense, *Ochna serrulata*	10	Grass dominated with high leaf litter cover	15	50
9	*E. botryoides x saligna*	50	*A. binervia, B. oblongifolia, *Broussonetia papyrifera, *L. camara, *Olea europaea subsp. Cuspidate, S. sieberi*	5	Grass dominated with high leaf litter cover **A. donax*	5	70
10	*E. parramattensis, A. floribunda*	15	*A. parramattensis, Acacia falcata, Melaleuca nodosa*	40	Sedge dominated with some grass *E. marginata, Gahnia sieberiana, Imperata cylindrica*	25	30

Site ID	Canopy species	Canopy cover %	Dominant mid species	Mid cover %	Dominant ground species	Ground cover %	Leaf litter %
11	*E. tereticornis, E. crebra*	20	*B. spinosa, Hakea sericea, M. nodosa, Melaleuca sp.*	50	Sedge dominated	10	90
12	*E. parramattensis, E. crebra, E. fibrosa*	10	*M. decora, M. nodosa, Casuarina glauca*	35	Sedge dominated *Themeda triandra, Lepidosperma laterale*	40	80
13	*A. floribunda, E. racemosa, E. parramattensis*	12	*Allocasuarina littoralis, Banksia oblongifolia, Banksia spinulosa, Melaleuca armillaris, M. decora, M. nodosa, Petrophile sp.*	40	Sedge dominated *Lomandra longifolia, L. laterale*	55	70
14	*Corymbia maculata, E. parramattensis, E. crebra,*	8	*A. decurrens, A. parramattensis, Allocasuarina spp., B. spinosa, Exocarpos sp., M. decora, Ozothamnus sp., S. sieberi, Pultenaea/Dillwynia sp.*	15	Grass dominated with some *Lepidosperma sp.*	55	15
15	*A. floribunda, E. crebra, E. racemosa, E. tereticornis*	15	*A. falcata, Allocasuarina sp., B. spinosa, Callistemon linearis, H. sericea, M. decora, M. nodosa, Persoonia linearis, Melaleuca sp.*	30	Sedge dominated *L. longifolia, Lepidosperma sp.*	35	85
16	*E. crebra, E. racemosa, Angophora floribunda*	15	*Allocasuarina sp., B. spinulosa, Brachloma daphnoides, H. sericea, Isopogon spp., M. decora, P. linearis, Petrophile sessilis*	15	Sedge dominated with some grasses present *L. longifolia,* Bracken	35	75
17	*E. parramattensis, E. tereticornis*	15	*A. decurrens, B. spinosa*	40	Grassy dominated understory *L. laterale, Entolasia stricta,* Bracken	60	20
18	*Angophora sp., E. racemosa, Melaleuca linariifolia*	6	*A. falcata, B. spinulosa*	10	Sedge dominated and adjacent to creek *Aristida vegans, Austrostipa rudis, Themeda triandra,* sedges and smaller leaved Grevillea	60	40
19	*E. punctata, E. racemosa*	8	*A. decurrens, H. sericea, M. nodosa*	65	Majority leaf litter *Billardiera scandens, Lomandra micanthra, Themeda triandra*	6	80

Site ID	Canopy species	Canopy cover %	Dominant mid species	Mid cover %	Dominant ground species	Ground cover %	Leaf litter %
20	*E. punctata, E. racemosa, M. linariifolia*	25	*M. nodosa*	45	*Gahnia radula, Lobelia purpurascens, Microlaena spp.*	75	20
21	*E. crebra, E. parramattensis*	5	*A. binervia, H. sericea, M. decora, Pultenaea villosa*	45	Grass dominated with some sedges *Grevillea parviflora, I. cylindrica, L. laterale, T. triandra*	30	50
22	*E. crebra, E. parramattensis, E. racemosa*	25	*A. binervia, M. decora, M. nodosa, Leptospermum trinervium*	40	Grass dominated *E. stricta, L. laterale, Lomandra multiflora, T. triandra*	30	25
23	*A. bakeri, E. parramattensis, E. racemosa*	20	*A. binervia, A. littoralis, H. sericea, M.decora, P. villosa*	45	Grass dominated *E. stricta, L. laterale, L. multiflora, T. triandra. *E. cuvula* along roadside	26	40
24	*E. crebra, E. parramattensis*	5	*A. littoralis, Kunzea ambigua, M. decora, P. villosa*	35	Very sparse *Cyathochaeta diandra, I. cylindrica, L. laterale, T. triandra. *E. cuvula* on edge nearest old railway line	20	35
25	*E. amplifolia, E. crebra, E. parramattensis*	10	*Callistemon pinifolius, M. decora, P. villosa*	15	Sedge dominant *Lepyrodias sp., S. apogon*	30	20
26	*Angophora bakeri, E. punctata*	20	*A. binervata, M. decora, Leptospermum polygalifolium*	25	Grass dominated *E. stricta, I. cylindrica, L. longifolia, Schoenus apogon, T. triandra*	80	10

*Exotic

APPENDIX B. Images from photo point monitoring

Site ID	North orientation	South orientation
1		

Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
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Site ID	North orientation	South orientation
26