

Appendix E

SAQPs



Sampling and Analysis Quality Plan – February 2025 event

**HMAS Albatross PFAS Ongoing Monitoring
Program**

Department of Defence

15 January 2025

→ The Power of Commitment

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1. Introduction

Department of Defence (Defence) engaged GHD Pty Ltd (GHD) to prepare this Sampling and Analysis Quality Plan (SAQP) to support the per- and poly-fluoroalkyl substance (PFAS) Ongoing Monitoring Plan (OMP) (Defence, 2019a) at His Majesty's Australian Ship (HMAS) Albatross (the 'Site') and the broader Management Area in the New South Wales (NSW) and Jervis Bay Territory Region. The Management Area is defined in the PFAS Management Area Plan (PMAP) (Defence, 2019b) and includes the Site and discrete residential properties in off-Site areas where surface water, groundwater and soil were found to contain PFAS, within the Braidwood Road drain sub-catchment, Nowra Creek sub-catchment, Upper Currumbene Creek sub-catchment and Cabbage Tree Creek sub-catchment. The Site and broader Management Area are presented on Figure 1, Appendix A.

The purpose of the OMP is to set out requirements for the collection of adequate data to identify and evaluate:

- Spatial, and temporal (including seasonal) variability of PFAS in the environment.
- Changes to sources, transport pathways and/or receptors, described as a conceptual site model (CSM) for the Site and the Management Area.
- Whether risks to human and ecological receptors require review.
- The influence that risk management activities at the Site, as outlined in the PMAP have had on PFAS in the environment.
- Whether the identified changes trigger an action and/or review.

The data collected may be used to inform where new risk management actions may be required, or to support a determination that remediation has been completed so far as reasonably practicable.

The purpose of this SAQP is to document the procedures that will be used to obtain data of sufficient quality to meet the objectives of the OMP and to facilitate the ongoing monitoring program.

1.1 Objectives

The key objectives of this SAQP are to:

- Define the proposed scope of works.
- Outline the proposed sampling methodology to be adopted.
- Outline the proposed quality assurance and quality control (QA/QC) measures to be adopted.
- Define the data collection and management requirements for this program.

1.2 Scope of work

The following scope of works are proposed as per the OMP (Defence, 2019a):

- Monitor the nature and extent (spatial and temporal) of PFAS impact in groundwater and surface water pathways associated with site sources of PFAS derived from the historical use of aqueous film forming foam (AFFF).
- Monitor the migration of PFAS in groundwater and surface water from the Site using data obtained from this SAQP monitoring program and historical data.
- Provide confirmation of the current understanding of risk.
- Provide supporting data for assessment of management actions, where relevant.

Additional sampling locations have been included in this SAQP, in addition to those detailed in the OMP. These are detailed with rationale in Section 4.1.

1.3 Guidelines and legislation

This SAQP has been developed with reference to the following guidelines and legislation:

- Australian and New Zealand Guidelines (ANZG) (2018). Australian and New Zealand Guidelines for Fresh and Marine Water Quality.
- Department of Defence (2018, amended 2021). *Contamination Management Manual – Annex L Data Management*.
- Department of Defence (2018, amended 2021). *Contamination Management Manual – Annex K Management of PFAS Contamination*.
- Department of Defence (2022). *PFAS Investigation and Management, Guidance Document E Standard PFAS Analytical Suite*.
- Department of Health (DoH) (2017). *Health Based Guidelines Values for PFAS for use in site investigation in Australia*.
- Heads of Environmental Protection Authorities (HEPA) (2020). *PFAS National Environmental Management Plan (NEMP), Version 2.0* (HEPA, 2020).
- National Environment Protection Council (NEPC) (1999, amended 2013). *National Environment Protection (Assessment of Site Contamination) Amendment Measure (NEPM) (No. 1)*.
- National Health and Medical Research Council (NHMRC) (2019). *Guidance on PFAS in Recreational Water*.
- Standards Australia (1998). *AS/NZ 5667:1998 Water Quality – Sampling*.

1.4 Previous investigations

Environmental reports for HMAS Albatross have been prepared for Defence dating back to 2005. A summary of reports prior to 2016 is provided in the Preliminary Site Investigation (PSI) undertaken by Aurecon (Aurecon, 2016).

A summary of all reports and documents related to PFAS investigations at HMAS Albatross conducted to date, specifically in relation to the PMAP and OMP is presented in Table 1.

Table 1 Existing reports and documents

Report / Document	Citation
Investigation of PFAS at HMAS Albatross, PSI.	(Aurecon, 2016)
Investigation of PFAS at HMAS Albatross, Detailed Site Investigation (DSI).	(Aurecon, 2017)
DEHP-ID-183-D1 Human Health and Ecological Risk Assessment (HHERA) for PFAS: HMAS Albatross.	(Environmental Risk Sciences [EnRiskS], 2017)
Addendum HHERA for PFAS: HMAS Albatross.	(EnRiskS, 2018)
PFAS OMP: HMAS Albatross.	(Defence, 2019a)
PFAS PMAP: HMAS Albatross.	(Defence, 2019b)
Ongoing Monitoring Program - Factual Reports for sampling events: <ul style="list-style-type: none"> – Dec 2019 – Feb 2020, May 2020, Jul 2020, Nov 2020 – Feb 2021, Aug 2021 – Feb 2022, Aug 2022 – Feb 2023, Aug 2023 – Feb 2024 	(AECOM, 2020 - 2024)
Ongoing Monitoring Interpretive Report (December 2021 – November 2022); PFAS OMP – HMAS Albatross.	(AECOM, 2023)
Ongoing Monitoring Interpretive Report (December 2022 – November 2023); PFAS OMP – HMAS Albatross.	(AECOM, 2024)

Report / Document	Citation
Ongoing Monitoring Program – Sampling Event Factual Report - August 2024.	(GHD, 2024a)
Ongoing Monitoring Interpretive Report (December 2023 – November 2024) (Draft); PFAS OMP – HMAS Albatross.	(GHD, 2024b)
Source Characterisation Report – HMAS Albatross (Draft).	(GHD, 2025)

1.5 Limitations

This report has been prepared by GHD for Department of Defence and may only be used and relied on by Department of Defence for the purpose agreed between GHD and Department of Defence as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Department of Defence arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

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2. Site and environmental setting

2.1 Site details

A summary of the site identification details is provided in Table 2 and the site locality is shown on Figure 1, Appendix A.

Table 2 Site identification summary

Information	Details
Street Address	HMAS Albatross (0026), Parma NSW 2540.
Coordinates (approximate site centre)	34°56'56"S and 150°32'13"E.
Site Area	Approximately 900 hectares (ha).
Military Area (Property ID)	0026
Local Government Area	Shoalhaven
Traditional custodians	Jerrinja and Wandj-Wandandian tribe of the Yuin nation.
Current Land Use	Department of Defence airfield with hangars / workshops and associated infrastructure including offices, training facilities, fire station and sewage treatment plant (STP).
Surrounding land use	<p>Land uses surrounding the site include the following:</p> <ul style="list-style-type: none"> – North: The land to the north of the site is a mix of agricultural and residential properties. The site is bound by Braidwood Road, which has a drainage channel located parallel. Bamarang Reservoir is located approximately 3.5 km north west of the site. The water from the reservoir is understood to be sourced from the Shoalhaven River approximately 10 to 11 km upstream from Calymea Creek. Cabbage Tree Creek is located to the north of the site, approximately 150m from the site boundary. – Northeast: Nowra Hill Public School, further to the northeast is Nowra Creek, located approximately 2.5 km from the site boundary. – East: The topography falls to the east of the site through agricultural land. The upper tributaries of and Currumbene Creek is located in in this area. – South: Parma Christmas Tree Farm and other agricultural land is located to the south, traversed by the upper tributaries of the Yerriyong Gully. – West: Albatross Aviation Technology Park and further west is Nowra Motorcross complex with a clearing along Braidwood Road and race track. Calymea State Conservation Area is mostly located to the west and is heavily vegetated forest.

2.2 Environmental setting

Table 3 provides a summary of the sites environmental setting, with further detail provided in various other reports (see Section 1.4).

Table 3 Environmental setting summary

Item	Description
Climate	<p>The climate of the HMAS Albatross region (NSW South Coast) is considered warm, mild, and temperate. Temperatures average a high of 27 °C in the summertime, with a low of 15 °C. Winter highs centre around 17 °C, while lows drop to 7 °C.</p> <p>Most rainfall is sporadic but tends to arrive in late summer and early autumn. Heavy rainfall can occur if a strong anticyclone is found to the south. Combined with the basin-like topography,</p>

Item	Description
	surface water retention and flooding on the site can be significant and the runways can be flooded and put out of operation.
Topography and site drainage	<p>The site is located on mostly flat terrain, at an elevation of approximately 120 m Australian Height Datum (AHD). The area has been extensively cleared and highly modified by flattening of ridges to create a level site for the airfield. The Nowra Hill Radar Tower in the north-east corner of the site is at an elevated part of the site of approximately 197 m AHD. Elevation drops steeply in the east of the site to approximately 40 m AHD towards Currumbene Creek.</p> <p>Stormwater across the site is collected in constructed drains that divert water to two main discharge points. These discharge points are the Braidwood Road drain in the north of the site, which receives the majority of stormwater discharge, and Currumbene Creek in the south of the site.</p> <p>The Site will undergo capital maintenance works undertaken as part of the National Airfields Works (P0010) that may change the site drainage. The aim of this project is to maintain the network of aircraft pavements, stormwater drainage and aeronautical ground lighting.</p>
Hydrology	<p>The site is divided into two water catchment areas:</p> <ul style="list-style-type: none"> – Shoalhaven River Basin which is in the north-west portion of the site. – Clyde River Basin which is in the south and east portions of the site. <p>Surface water from the Shoalhaven River Basin generally flows north towards Shoalhaven River, and the Clyde River Basin flows south and south-east towards Currumbene Creek and Jervis Bay.</p> <p>Beyond the site, natural surface water bodies include Cabbage Tree Creek, Calynea Creek, Shoalhaven River, Currumbene Creek, Yerriyong Gully, Braidwood Road, Flat Rock Creek and Parma Creek.</p> <p>Town water for the site is sourced from the Bamarang Reservoir, approximately 3.5 km to the north-west of HMAS Albatross.</p>
Soil landscape	On-site soils consist of alluvium, described as grey-brown to yellow-brown silty sands and sandy clays. These are present from the surface to approximately three metres below ground level (m bgl) in the eastern portion of the site. In areas closer to site infrastructure and support buildings, alluvium is limited to shallower depths of up to 1.5 m bgl, overlying firm to stiff sandy clay and highly weathered sandstones.
Acid sulfate soils (ASS)	The CSIRO Atlas of Australian Acid Sulfate Soils (2013) indicates the probability of occurrence of ASS across the site is extremely low probability/very low confidence. The 'very low confidence' is due to the lack of investigation data for acid sulphate soils in the area.
Geology	Beneath the alluvial soils, the site is located on Permian Berry Siltstone, comprising mid grey to dark grey siltstone to fine sandstone, overlying the quartz sandstones of the Permian Nowra Sandstone (Aurecon, 2017). Intrusive investigation undertaken in 2017 identified the presence of siltstone to a depth of between 0.8 and 4.2 m bgl in the east and between 4.8 and 10 m bgl in the west (Aurecon, 2017) .
Hydrogeology	<p>The intermediate groundwater aquifer residing in the weathered Berry Siltstone clay/ironstone (laterite) formation that underlies the site is generally semi-confined. Groundwater has generally been encountered at depths of greater than 5 m bgl within the vicinity of the runway, with the recorded standing water level (SWL) ranging from 2.0 to 8.0 m bgl.</p> <p>The inferred groundwater direction is either north to northeast towards the Shoalhaven River or south to southeast towards Currumbene Creek and Jervis Bay (Aurecon, 2017).</p> <p>There are no current registered groundwater bores on the Site or within a 500 m radius of the Site. The Site is serviced by reticulated water, and the grassed airside training areas are irrigated using treated effluent from the on-site STP (AECOM, 2020).</p> <p>There is a discontinuous and intermittent perched water layer that appears after heavy rain events (the shallow perched system). The continuous intermediate groundwater aquifer is fed by rainfall recharge and have accumulated over geologic time on the relatively impermeable subsurface material below the site. Recharge of the deeper siltstone unit may be from regional flow and the overlying units (GHD, 2023).</p>
Groundwater and surface water use	<p>Groundwater and surface water are not used on-site for any purposes. All water is supplied through town water.</p> <p>Treated water from the STP is used to irrigate three on-site areas. These areas are the western pad, the parachute training area and an area near the flight deck procedural trainer area.</p>

Item	Description
	<p>In regard to surrounding use, the results of a water use survey which was issued to neighbouring properties as part of the PSI (Aurecon, 2016) and the results were reported in the DSI (Aurecon, 2017) indicated that:</p> <ul style="list-style-type: none"> – Drinking water was either supplied through town water or rainwater. – Residents did not use bore water for any purposes, with the exception of one resident who indicated a dam was used for irrigation for lawn, fruit and vegetables as well as stock.
Ecology	<p>The operational areas within HMAS Albatross are highly disturbed and comprise hard surfaces including taxiways, aprons, runways surrounded by mown grass. Previous investigations at the site indicate the absence of threatened ecological communities (TEC) and native vegetation communities. The closest mapped TEC is 30 m north of the site boundary.</p>
Heritage	<p>HMAS Albatross is not listed for its indigenous heritage values on any Commonwealth or State register.</p> <p>Four Indigenous heritage elements were identified as present on the site (Biosis, 2020). In addition, areas of archaeological potential, including potential burial sites, scarred trees and open artefact scatters were identified. All heritage elements and areas of archaeological potential are located outside of the Project area.</p>

2.3 Conceptual site model

The CSM is presented in the PMAP (Defence, 2019b) which summarised the linkages between sources, exposure pathways and receptors. A further assessment of risk exposure pathways is presented in the DSI (Aurecon, 2017), HHERA (Environmental Risk Sciences [EnRiskS], 2017) and the Addendum HHERA (EnRiskS, 2018).

2.3.1 Sources

The CSM identified several sources of PFAS which was divided into two distinct groups:

- Primary sources of PFAS: identified as areas with soil containing a high contaminant concentration and include the firefighting training area and STP.
- Secondary sources of PFAS: identified to exist at generally low concentrations and distributed in both on-site and off-site areas, including:
 - Soil at the STP irrigation areas, hangers, flightlines and associated activities.
 - Groundwater.
 - Surface water.

The primary pathway for PFAS from the Site has been identified as surface run-off (Defence, 2019b), with the major PFAS discharge point located at Braidwood Road Drain on the Site's western boundary.

GHD reviewed 34 AECS outside the two site wide CSRs in the Source Characterisation Report (Draft) (GHD, 2025). Of these 15 AECS were identified and are considered as PFAS primary and / or secondary source areas. A summary of these identified PFAS source zones associated with the management area is provided Table 4 below and are presented in Figure 2 of Appendix A.

Table 4

Summary of identified PFAS source zones associated with the management area

AEC	Area activity	Historic / ongoing source?	Inferred discharge area
EC 1	Fire station and suppression store was constructed in 1999 – has used and /or stored both legacy AFFF and AFFF Ansulite.	Historic, with ongoing sources from impacted environmental media.	– SW Braidwood Road Drain – GW Braidwood Road Drain
AEC 2	Former fire training area (FFTA) - has used both legacy AFFF and AFFF Ansulite.	Historic, with ongoing secondary sources from impacted environmental media.	– SW Braidwood Road Drain – GW Yerriyong Gully
AEC 11	ROMEO facility – built in 2012. Has stored and still stores both legacy AFFF and AFFF Ansulite. The site contains 3 x AFFF storage tanks for waste that are pumped out by Ventia will full.	Ongoing, with ongoing secondary sources from impacted environmental media.	– SW Braidwood Road Drain – GW Braidwood Road Drain
AEC 15	STP and effluent storage dam – historically wastewater potentially containing legacy AFFF was captured and released to the STP for treatment. Stormwater captured across operational areas of the site eventually discharge to the STP. The STP has the potential to overflow to Currumbene Creek during high rainfall events.	Ongoing	– SW Yerriyong Gully – GW Yerriyong Gully
AEC 16	Effluent irrigation area – this area receives water from the STP for irrigation.	Ongoing, with ongoing secondary sources from impacted environmental media.	– SW Yerriyong Gully – GW Yerriyong Gully
AEC 22	Former Firefighting training area – the PSI stated that the area was for regular fire training with fires extinguished with legacy AFFF.	Historic, with ongoing secondary sources from impacted environmental media.	– SW Braidwood Road Drain – GW Braidwood Road Drain
AEC 24d	AFFF exercise area (former).	Historic, with ongoing secondary sources from impacted environmental media.	Multiple areas
AEC 25	AFFF spill at Hangar K (Dec 2014) – flow into stormwater drains and retention basin. Heavy rainfall then caused the retention basin to overflow and discharge into open stormwater.	Historic, with ongoing secondary sources from impacted environmental media.	Multiple areas
AEC 27B	Parachute training area – historically has received excess fill from construction activities on the base.	Historic, with ongoing secondary sources from impacted environmental media.	– SW Braidwood Road Drain – GW Yerriyong Gully
AEC 30	Former Stockpile area – located along the road outside Gate 3. Historical areas show this area in use from 2015 to July 2018.	Historic, with potential ongoing secondary sources from impacted environmental media.	– SW Upper Currumbene / Yerriyong Gully – GW Upper Currumbene / Yerriyong Gully
AEC 31	Former Stockpile area – located to the west of the STP. Has had visible stockpiles since 2004. Large area during 2015 which coincided with the building of the base support services area and canteen.	Historic, with potential ongoing secondary sources from impacted environmental media.	– SW Yerriyong Gully – GW Yerriyong Gully

AEC	Area activity	Historic / ongoing source?	Inferred discharge area
AEC 32	Former Stockpile area – south of the Napo area. This area received soil during the build of the Base support services and canteen area in 2015. All soil stockpiles were removed by 2017.	Historic, with potential ongoing secondary sources from impacted environmental media.	<ul style="list-style-type: none"> – SW Upper Currumbene – GW Upper Currumbene
AEC 33	Former Stockpile area - this former stockpile area is located to the north west of the FFTA. The area was used between 2016 and 2017.	Historic, with potential ongoing secondary sources from impacted environmental media.	<ul style="list-style-type: none"> – SW Braidwood Road Drain – GW Braidwood Road Drain
AEC 34	Clear disturbed area – this area is located to the north east of Hangar J. The area was cleared sometime in August 2015 to May 2016 based on historical aerials.	Historic, with potential ongoing secondary sources from impacted environmental media.	<ul style="list-style-type: none"> – SW Upper Currumbene – GW Upper Currumbene

2.3.2 Migration pathways

PFAS can travel from a source to human or environmental receptors via transport pathways, such as surface water, groundwater and stormwater. The primary transport pathways of PFAS from the above source areas are via groundwater and surface water pathways. The PFAS migration pathways at the Bases and surrounding management area can be summarised as:

- Exposure during excavation and construction activities.
- Dispersion of soil and dust from wind and water.
- Overland transport of particulate and dissolved PFAS, via surface water runoff.
- Migration of groundwater to a discharge area, including standing water bodies and creeks.
- Vertical migration from soil (and to a lesser extent, concrete) to groundwater.
- Active distribution of PFAS impacted waters via effluent irrigation system.

2.3.3 Receptors

The following potential receptors associated with the management area include:

- Human health:
 - HMAS Albatross personnel and site users (including intrusive maintenance workers).
 - Residents at neighbouring properties (off-site).
 - Consumers of home grown produce (off-site).
 - Recreational users of surface water (off-site).
- Ecology and environment:
 - On and off-site terrestrial ecological receptors (flora and fauna).
 - On and off-site groundwater and surface water aquatic ecology (flora and fauna).

3. Data quality assessment

3.1 Data quality objectives

The Data Quality Objective (DQO) process is an iterative planning approach used to define the type, quantity and quality of data that is needed to inform decisions relating to the environmental condition of a site. The seven step DQO process:

- Clarifies the study objective.
- Defines the most appropriate collection of data as relevant to the study objective.
- Determined the conditions from which to collect data.
- Specifies tolerable limits on decision errors, which will be used as the basis for establishing the quantity and quality of data, needed to support the decision.

The DQOs for monitoring are presented in Table 5. They have been prepared in line with the DQO process as outline in the ASC NEPM (Schedule B2) (NEPC, 2013).

Table 5 Data quality objectives

Process	Description
Step 1: State the problem	<p>The historical use, storage and waste management of legacy AFFF containing PFAS HMAS Albatross has contributed to soil, sediment, surface water and groundwater impacts on- and off-site. Defence’s management of the risks under the PMAP aims to avoid or minimise exposure to PFAS contamination from Defence properties to human health and ecological receptors. Defence and State agencies require continued monitoring data to enable informed risk/remedial management decisions to protect human health and the environment.</p> <p>Ongoing surface water, groundwater and biota monitoring at on and off-site locations is required to be undertaken as part of the HMAS Albatross PMAP to assess spatial and temporal variation in PFAS concentrations. This dataset will provide a baseline to benchmark any remediation works that are to be undertaken at the site in the future.</p> <p>This will allow (if required) the update and refinement of the CSM, HHERA and inform management decisions by Defence and state agencies.</p>
Step 2: Identify the decision/goal of the study	<p>The principal objective of the OMP is to provide sufficient information on PFAS distribution and risk so that informed decisions can be made on the management of any risks.</p> <p>This information is gained through:</p> <ul style="list-style-type: none"> - Undertaking surface water and groundwater monitoring to assess the changes in the nature and extent (spatial and temporal) of PFAS concentrations on and off site. - Collecting further baseline data from different media, for comparison during and after remediation of hotspot/source areas to assess the success of the remediation and management methods. - Monitoring the migration of PFAS in groundwater from the site, particularly in groundwater flowing from the northern boundary. - Conducting surface water monitoring to assess seasonal effects on water flow and PFAS concentrations, including during or immediately after extreme or high rainfall events. <p>From these objectives, the following questions need to be understood:</p> <ul style="list-style-type: none"> - How many sampling locations are required to meet the objectives of the OMP? - Are there sentinel sampling points that can be easily accessed? - What is the sampling frequency required at each sample location? - What is the laboratory limit of reporting (LOR) required at each sample location? - How do the concentrations compare to previous rounds of monitoring? lower, higher or stable? Has the nature, extent and magnitude of PFAS concentrations changed significantly to warrant a revision of the HHERA? - Has the nature, extent and magnitude of PFAS concentrations changed significantly to warrant refinement of any existing management measures? - Are there any statistical trends in the data set? - Do the concentrations trigger any additional measures? - Is the data reliable, valid and of sufficient quality to make informed decisions?

Process	Description
Step 3: Identify the information inputs	<p>To allow assessment of the data against the study goal listed in Step 2 above, the following inputs will be considered:</p> <ul style="list-style-type: none"> - PFAS results from previous environmental investigations to assess variations over time and to measure success of the remediation and management measures. - Groundwater, surface water, and biota collected and analysed for PFAS, as part of the OMP. - Field data (i.e. groundwater SWL, physio-chemical parameters) on groundwater and surface water. - Weather conditions preceding sampling events, particularly rainfall events. - Site status and land use scenarios and whether these have changed. - Advances in laboratory analytical approaches and changes in regulatory requirements. - Changes in land uses or groundwater usage.
Step 4: Define the boundaries of the study	<p>The OMP comprises sampling locations within the Management Area comprising HMAS Albatross and off-site as shown on Figure 3 and Figure 4, Appendix A.</p> <p>The monitoring will be ongoing (beyond three years).</p> <p>The frequency of the sampling is defined in Section 4.1.</p>
Step 5: Develop the analytical approach/decision rules	<p>The decision rules can be defined as:</p> <ul style="list-style-type: none"> - The analytical and field data will be used to assess changes to the nature, extent and magnitude of PFAS in surface water and groundwater and to assess the effectiveness of implemented management measures. - All samples analysed for the full PFAS suite, appropriate laboratory LOR and suitability of data assessed to ensure the laboratory QA/QC is within acceptable ranges. - Comparison of PFAS concentrations in surface water and groundwater against the adopted assessment criteria. Where exceedances or first time detections or significant increases/decreases are observed, these will be considered using a holistic approach that looks at the results in the context of climatic events, changes in SWLs etc. - Comparison of PFAS concentrations in surface water and groundwater against previous results to determine any temporal or spatial trends or variations in concentrations. Variations will be assessed against recharge events (rainfall) and surface water flow. - Assessment of any trends (such as temporal or seasonal trends) and exceedance of trigger values may inform decision making to consider whether further monitoring may be reduced or continued. <p>The decision on the acceptance of analytical data should be made on the basis of data quality indicators (DQIs) detailed in this SAQP and the following:</p> <ul style="list-style-type: none"> - If detections of PFAS are reported in field blanks or rinsate blanks, then consider if there is a potential for cross contamination between sample locations and what impact this has on conclusions of trends. - If PFAS concentrations increase by more than an order of magnitude over three consecutive sampling rounds or to concentrations associated with potentially unacceptable risks to human health or the environment in areas where the HHERA concluded that PFAS risks were low and acceptable, then a revision to the HHERA may be required.
Step 6: Specify performance or acceptance criteria	<p>Two primary decision error-types may occur due to uncertainties or limitations in the project data set. This may include:</p> <ul style="list-style-type: none"> - Groundwater and/or surface water network are no longer adequate to assess risks. - A sample/area may be deemed to pass the nominated criteria, when in fact it does not. This may occur if contamination is 'missed' due to limitations in the sampling plan, or if the project analytical data set is unreliable. - A sample/area may be deemed to fail the nominated criteria, in actuality, it may not. This may occur if the project analytical data set is unreliable, due to inappropriate sampling, sample handling, or analytical procedures. <p>The following tasks would be undertaken:</p> <ul style="list-style-type: none"> - Review of the monitoring network to ensure it will achieve the optimal results to inform management decisions. Update the OMP as required. - An assessment to understand the likelihood of a decision error being made based on the results of a QA/QC assessment and the closeness of the data to the assessment criteria. - A QA/QC assessment, evaluating the reliability and useability of data, which are expressed as five DQIs.

Process	Description
Step 7: Develop the plan for obtaining data	<p>This OMP provides the guidance for preparing a SAQP that is required for each monitoring event, including scope of work, sampling methodologies, monitoring locations and PFAS assessment levels. The SAQP should be developed in response to the principal study questions outlined in Step 2 and to meet the DQOs. The recommended OMP scope for the first year of monitoring is outlined in Section 3. This should be reviewed at least annually.</p> <p>To maintain the integrity and reliability of data the following measures should be adopted:</p> <ul style="list-style-type: none"> - Field and analytical data are collected in accordance with the PFAS NEMP (HEPA, 2020) and the ASC NEPM (NEPC, 2013). - Field personnel should be trained and have sufficient experience to complete the fieldwork to an acceptable standard, as per the protocols outlined in the OMP / SAQP. - Robust field and laboratory QA/QC protocols are adopted, as outlined in Section 4.6. - Use laboratories that are National Association of Testing Authorities (NATA) accredited for PFAS analysis and ensure laboratory LORs are suitable to meet the relevant adopted assessment levels.

3.2 Assessment of data quality

The acceptance criteria for DQIs are based on those outlined in the OMP (Defence, 2019a) and are provided in Table 6.

Table 6 DQI acceptance criteria

DQI	Acceptance criteria
Field QA/QC	
Field program	Fieldwork is to be undertaken by suitably experienced field staff in accordance with the sampling procedures outlined in this SAQP.
Rinsate blank samples (where sampling equipment is reused)	Rinsate blank samples should be collected at a rate of one per day of monitoring and analysed for PFAS. The concentration of PFAS should be less than the laboratory LOR.
Trip blank samples	Trip blank samples for PFAS should be submitted to the laboratory at a rate of one per batch. The concentration of PFAS should be less than the laboratory LOR.
Intra- and inter-laboratory duplicates	<p>Intra- and inter-laboratory duplicates are to be collected and analysed at a rate of 1 in 10 primary samples.</p> <p>The relative percentage differences (RPDs) are to be calculated for all primary and field duplicate pairs and will be considered acceptable based on the following RPD limits:</p> <ul style="list-style-type: none"> - 200% for concentrations within 1 to 10 times the analyte LOR. - 50% for concentrations within 10 to 30 times the analyte LOR. - 30% for concentrations greater than 30 times the analyte LOR.
Laboratory QA/QC	
Laboratory duplicates	<p>Laboratory duplicate sample RPDs are to be less than:</p> <ul style="list-style-type: none"> - 20% for high level concentrations (i.e. greater than 20 times the analyte LOR). - 50% for medium level concentrations (i.e. between 10 and 20 times the analyte LOR).
Matrix spikes	Matrix spike recoveries are to be in the range of 70 to 130% of the theoretical recovery or as nominated in the laboratory's QC report.
Method blanks	Method blank samples are to have a concentration less than the laboratory LOR.
Laboratory control samples	The recovery of laboratory control samples are to be within the laboratories' specified range for the particular analyte or analytical suite.

4. Sampling rationale and methodology

4.1 The OMP

The OMP (Defence, 2019a) outlines the requirements for the monitoring works to be undertaken and provides the basis for the preparation of this SAQP.

This February sampling event is for the annual groundwater sampling and gauging and first biannual surface water sampling event for 2025. The scope of works presented in this SAQP is consistent with the requirements outlined in the OMP (Defence, 2019a) with the exception of the deviations presented in Table 7.

Table 7 Deviations from OMP

Location	Deviation	Rationale
0026_SW106	Add location to OMP.	PFAS characterisation on surface water. Data used to establish baseline conditions.
0026_SW049		
0026_SW065		
0026_SW123		
0026_SW124		
0026_MW037	Removed from the OMP.	Location no longer required.
0026_MW030	Add location to OMP.	PFAS characterisation on groundwater. Fill in data gaps near the hangars.
0026_MW117		
0026_MW088	Add location to OMP for the February 2025 round only.	Located nearby/adjacent to the source area AEC34 (clear / disturbed areas; down hydraulic gradient of hangers/fuel farm).
0026_MW104		
0026_MW112		
0026_MW213		

A summary of the number of locations to be included in this event is provided in Table 8. All monitoring locations are presented on figures in Appendix A and tabulated in Appendix B.

Table 8 Number of monitoring locations

Media	Total number of locations
Groundwater	32
Surface water	18
Total # locations	50

Groundwater monitoring locations have been determined based on the following:

- Locations that will provide sufficient coverage to assess PFAS movement/variations on- and off-Site.
- Locations where groundwater flows from known sources of PFAS to sensitive receptors.
- Where existing monitoring locations and data points are present.
- Locations at the boundary of site and at receptors have been included as ‘sentinel’ wells.

Surface water monitoring locations have been determined based on the following:

- Locations targeting pathways from source areas and to receptors were included, to provide an indication of potential change in directions.
- Locations on-site will be sampled during wet weather conditions.

- From surface water bodies that are known to receive surface water flow from the site.
- Surface water bodies that receive groundwater discharge (i.e. springs).

4.2 Sample collection and handling

4.2.1 Groundwater sampling

The groundwater sampling methodology is presented in Table 9.

Table 9 Groundwater sampling methodology

Item	Description
Technical guidelines	<p>Australian Standard 5667:1998 <i>Water Quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples</i> (AS 5667.1:1998).</p> <p>Australian Standard 5667:1998 <i>Water Quality – Sampling, Part 11: Guidance on the Sampling of Groundwaters</i> (AS 566.11:1998).</p> <p>ASC NEPM (NEPC, 2013).</p> <p>PFAS NEMP (HEPA, 2020).</p>
Field screening and gauging	<p>The monitoring wells will be gauged in each monitoring well prior to collection of groundwater samples using a decontaminated oil/water interface probe to measure standing water level (SWL) and assessed for the potential presence of LNAPL (light non-aqueous phase liquid) and DNAPL (dense non-aqueous phase liquid). In addition, the base depth of the monitoring wells will be measured. Depth measurements will be referenced to the top of well casing as an established datum.</p>
Field chemistry and sampling	<p>A groundwater sample will be collected from each well using no-purge methodology with HydraSleeves™, which will be installed within the screened interval of the wells. New HydraSleeves™ will be used for annual sampling event.</p> <p>It is noted that prior to the initial sampling round, or when HydraSleeves™ must be re-deployed, the HydraSleeves™ will need to be installed in the well before sampling for a minimum of:</p> <ul style="list-style-type: none"> – 4 hours when deployed with bottom weights only. – 24 hours when deployed with top and bottom weights. <p>The timeframes outlined above are to allow for re-stabilisation of the standing water level in the well following a disturbance. Care should be taken to avoid placing the base of the HydraSleeves™ at the base of the monitoring well, where a build-up of sediment may be present. The installation depth of the HydraSleeves™ is to be recorded (generally as HydraSleeve™ collar depth in mbTOC).</p> <p>During the monitoring event, if a groundwater well is found to not contain a HydraSleeve™ the procedure is as follows:</p> <ul style="list-style-type: none"> – If time or access restraints are present, a sample will be collected using a dedicated, disposable high-density polyethylene (HDPE) bailer. It is noted that in this instance, a minimum of three well volumes should be removed and water removal continued until stabilisation of water quality parameters is achieved. If recharge is insufficient and there is a risk of the well becoming dry, a sample can be collected prior to this. – If there are no time or access restraints, the HydraSleeve™ will be re-deployed and the minimum timeframes outlined above, depending on deployment set up, will need to be achieved before sampling. <p>Field parameters (pH, electrical conductivity (EC), oxygen redox potential (redox), dissolved oxygen (DO) and temperature) will be measured and recorded for all groundwater locations prior to sample collection. In addition, observations of water quality such as the colour, turbidity level, and the presence/absence of odour or sheen will be recorded.</p> <p>Retrieved groundwater samples will immediately be filled from the HydraSleeve™ into laboratory supplied containers suitable for the requested analyses. The sample containers will be labelled with the job number, sample identification and date collected.</p>
Decontamination	<p>Prior to and following the collection of each groundwater sample, all non-disposable sampling equipment will undergo decontamination including:</p> <ul style="list-style-type: none"> – Washing of equipment with phosphate/PFAS-free detergent (Liquinox) and/or

Item	Description
	– Rinsing of equipment with laboratory supplied PFAS-free water.
Quality assurance and quality control (QA/QC)	The following field QA/QC samples will be collected and analysed for PFAS (standard suite) as part of the groundwater sampling program: <ul style="list-style-type: none"> – One intra-laboratory duplicate per ten primary samples. – One inter-laboratory duplicate per ten primary samples. – One rinsate sample per day of sampling. – One trip blank per batch.
Sampling schedule	The sampling round will include monitoring at 32 groundwater locations as outlined in Section 4.3.2.

4.2.2 Surface water sampling

The surface water sampling methodology is presented in Table 10, which will be used for both the transitional event and annual OMP events.

Table 10 Surface water sampling methodology

Item	Description
Technical guidelines	Australian Standard 5667:1998 <i>Water Quality – Sampling, Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples</i> (AS 5667.1:1998). Australian Standard 5667:1998 <i>Water Quality – Sampling, Part 6: Guidance on the Sampling of rivers and streams</i> (AS 566.6:1998). ASC NEPM (NEPC, 2013). PFAS NEMP (HEPA, 2020).
Field chemistry and sampling	A surface water sample will be collected as a ‘grab sample’ mid-way through the water column or approximately 0.5 m below the surface at the individual surface water sampling locations. If the reachable water column is less than 0.5 m deep, the sample will be collected from at least half the water depth, and care should be taken to avoid surface films entering the sample. If the water column is greater than 0.5 m deep, the sample should be taken 20 to 30 cm below the surface of the water. Each individual sample will be collected into a new laboratory-supplied, unpreserved sample container with new nitrile gloved hands. An extendable sampling pole may be used for easier sample collection. Field parameters (pH, EC, redox, DO and temperature) will be measured and recorded for all groundwater locations. In addition, observations of water quality such as the flow (flowing or not flowing), colour, turbidity level, and the presence/absence of odour or sheen will be recorded. The sample containers will be labelled with the job number, sample identification and date collected.
Quality assurance and quality control (QA/QC)	The following field QA/QC samples will be collected and analysed for PFAS (standard suite) as part of the surface water sampling program: <ul style="list-style-type: none"> One intra-laboratory duplicate per ten primary samples. One inter-laboratory duplicate per ten primary samples. One rinsate sample per day of sampling (where applicable). One trip blank per batch.
Sampling schedule	The sampling round will include monitoring at 18 surface water locations as outlined in Section 4.3.2.

4.2.3 Sample handling and transport to laboratory

Following collection of each batch of samples, samples will be immediately stored in a cool, dark environment (esky) prior to being forwarded to the NATA accredited analytical laboratory within the specified holding times along with a standardised chain of custody (COC) form. Analyses will be undertaken on a standard turnaround time of five business days, and analytical results will be emailed to GHD as a compiled report from the laboratory (as Esdat files and PDF report).

4.2.4 Calibration

Prior to use in the field, all field instruments (i.e. water quality meter, interface probe) are to be calibrated by the equipment supplier to optimise the accuracy of the measurements taken. The calibration certificate from the equipment supplier will be checked by the field team to confirm the field instruments are in good working condition.

All calibration certificates for equipment hired will be collected as part of the field documentation and presented as an attachment in the Sampling Event Report.

4.2.5 Waste management

The proposed groundwater sampling methodology utilising HydraSleeves™ is not considered to generate a volume of liquid waste that requires management or disposal.

All solid waste, comprising of dedicated sampling equipment (i.e. HydraSleeves™, bailers, gloves etc) and general rubbish will be collected and disposed in general waste bins present on-site.

4.2.6 Logistics

All sample containers will be couriered directly from the laboratory to a GHD office prior to the commencement of fieldwork. After each batch of samples has been prepared in the field, they will be transported by the nominated laboratory's courier directly to the laboratory with a signed chain of custody (COC) form detailed with the requested analysis.

4.3 Analytical suite and laboratory analysis methods

4.3.1 Laboratory NATA accreditation details

The NATA accredited laboratories selected for this monitoring program are as follows:

- Primary laboratory: Australian Life Science (ALS) Environmental, Smithfield, New South Wales (NATA Accreditation No. 825).
- Secondary laboratory: Eurofins, Girraween, New South Wales (NATA Accreditation No. 1261).

4.3.2 Analytical schedule

All groundwater and surface water samples collected as part of the monitoring program will be submitted for standard level analysis of the standard 28 PFAS suite. Analysis will be conducted to a standard laboratory limit of reporting (LOR), which is <0.01 ug/L for water.

4.3.3 Validation of analytical results

After completion of a monitoring event, analytical results will be reviewed and may need to be validated to confirm the original results if a QAQC discrepancy is considered possible. This would be achieved by requesting re-analysis of a sample by the laboratory or, if required, re-sampling and analysis. GHD would seek approval from Defence prior to mobilisation to site for re-sampling.

4.4 Data management

4.4.1 Sample nomenclature

All sample naming will be in accordance with the Defence Contamination Management Manual (DCMM), specifically Annex L (Data Management). Sample IDs will follow the nomenclature below:

PPPP_XX000_YYMMDD

Where for this monitoring program:

- PPPP = Property ID = '0026' for HMAS Albatross.
- XX = Location type, e.g. 'MW' for monitoring well or 'SW' for surface water.
- 000 = Three-digit sample number = e.g. '030'.
- YYMMDD = Sample date by year, month then day, e.g. '250217'.

The above example would provide a sample ID (at HMAS Albatross) of '0026_MW030_250217.'

QA/QC samples will be labelled in accordance with DCMM Annex L, as per the following nomenclature:

- Intra-laboratory duplicate (blind): PPPP_QC1XX_YYMMDD.
- Inter-laboratory duplicate (split): PPPP_QC2XX_YYMMDD.
- Rinsate blank: PPPP_QC3XX_YYMMDD.
- Trip blank: PPPP_QC5XX_YYMMDD.

4.4.2 Defence ESdat requirements

All field and analytical data collected as part of this monitoring program will be uploaded, stored and managed in the Defence Environmental Data Management System (EDMS) in accordance with DCMM Annex L using ESdat software. After completion of a monitoring event, field and analytical data will be uploaded into ESdat prior to submission of the factual report for the sampling event.

4.5 Adopted screening criteria

The relevant guidelines and legislation reviewed at the time of this report to define the adopted screening criteria are outlined in Section 1.3.

The adopted screening criteria to assess the PFAS data in this monitoring program for human health and ecological receptors as per the OMP is presented in Table 11.

Table 11 Summary of adopted screening criteria

Media	Receptor	Guideline
Groundwater and surface water	Ecology	NEMP (2020) – freshwater and marine water 95% species protection.
	Human health	NEMP (2020) – Drinking water.
		NEMP (2020) – Recreational.

4.6 Quality assurance / quality control sampling

4.6.1 Field duplicate and inter-laboratory duplicate samples

Intra-laboratory (blind) and inter-laboratory (split) duplicates are to be collected and analysed for PFAS in accordance with the PFAS NEMP 2.0 (HEPA, 2020) at a minimum frequency of 1 in 10 primary samples.

4.6.2 Rinsate samples

Rinsate blank samples are to be collected at a rate of one per day of monitoring where re-usable sampling equipment has been used (e.g. interface probe, trowel). The rinsate blank sample is collected by pouring laboratory supplied deionised water over the decontaminated sampling equipment into the appropriate sampling container for PFAS analysis.

4.6.3 Trip blank samples

Trip blank samples will be used to estimate the amount of contamination introduced during the transport and storage of samples from the time of sampling to the time of analysis. Trip blanks are laboratory supplied and will be collected at a rate of 1 sample per fieldwork and analysed for PFAS at standard LOR.

4.7 Field documentation

4.7.1 Field notes

All sampling locations for each monitoring round will have an accompanying field record which will include information specific to the location type. This information is summarised in Table 12.

Table 12 Summary of fieldwork documentation

Media	Information to be recorded
Groundwater	<ul style="list-style-type: none">- Standing water level and depth of well measurements.- Date, time and field staff present.- Field parameters (pH, EC, redox, DO and temperature).- Observations of colour, turbidity, presence/absence of odour or sheen.- Intra- or inter-laboratory duplicates collected (if applicable).- Other comments (i.e. access) (if applicable).
Surface water	<ul style="list-style-type: none">- Date, time and field staff present.- Field parameters (pH, EC, redox, DO, temperature and turbidity).- Observations of colour, turbidity, presence/absence of odour or sheen.- Environmental observations such as weather, temperature, slope and erosion.- Hydrological observations such as flow (flowing or not flowing) and estimated width and depth of water body with photographs of each sample point.- Intra- or inter-laboratory duplicates collected (if applicable).- Other comments (i.e. access) (if applicable).

All calibration certificates for equipment hired during fieldwork will be collected and presented in the Sampling Event Report as part of the field documentation.

4.7.2 Sample labels

Sample containers will be labelled with the following identification:

- Project number.
- Sample identification (as per the nomenclature outlined in Section 4.4).
- Sampler name.
- Sample collection date.

4.7.3 Chain of Custody (COC) forms

For each batch of samples prepared in the field, a COC form will be completed and sent with the samples to the laboratory. The COC form will include information such as the project number and name, sample identification and date, requested analyses and will be signed by the field staff representative. Upon receipt of samples at the laboratory, the COC will be signed by a laboratory staff member.

If additional samples are collected during monitoring based on field observations which are not from sampling locations included in this SAQP, GHD will seek approval from Defence for analysis of these samples.

5. Reporting

5.1 Sampling event report

After each monitoring event, information, field and laboratory data will be documented in a Sampling Event Report prepared in accordance with Defence *PFAS Ongoing Monitoring Program Reporting Guidance* (Defence, 2024) and will include:

- The scope of works undertaken including constraints and assumptions.
- Deviations from SAQP/OMP and associated implications (if any).
- Sampling methodology.
- PFAS screening criteria.
- Evaluation of the quality assurance and quality control to assess the adequacy for interpretative use.
- Summary of the field observations including weather conditions, surface water, visual and olfactory.
- Results and discussions including field parameters and analytical results, with comparison to historical conditions and screening criteria, and consideration of results and other information against OMP triggers.
- Conclusions and summary of key findings.
- Figures presenting management area, site layout and source areas (including CSR ids) surface water flow direction, PFAS distribution figures for each media.
- A tabulated summary of field observations and parameters and laboratory analytical results which includes comparison with the adopted assessment criteria.
- Attachments for all field and laboratory documentation, such as:
 - Field records for groundwater and surface water monitoring locations.
 - Equipment calibration certificates.
 - Chain of custody forms.
 - Laboratory analytical certificates.

5.2 Ongoing monitoring report

At the end of a specified period (typically 12 months but may vary) the whole data set (including the current and historic data) will be reviewed, and an Ongoing Monitoring Report prepared.

The Ongoing Monitoring Report will report on the objectives of the OMP, as outlined in Section 1.

The Ongoing Monitoring Report will be prepared in accordance with the Defence *PFAS Ongoing Monitoring Program Reporting Guidance* (Defence, 2024) and will include:

- A summary of deviations to the requirements of the SAQP (if applicable).
- A summary of any changes to the condition of the monitoring network that may affect the integrity of the data collected, or which may require repair, reinstatement or decommissioning.
- Contextual and ancillary information that has occurred in the broader management area that may affect monitoring results, such as remediation projects, infrastructure projects and weather events.
- Figures which present all sampling locations and site-specific hydrogeological features.
- A tabulated summary of laboratory analytical results for the specified period which includes comparison with the adopted assessment criteria.
- A QA/QC assessment and evaluation.
- Data interpretation, including trends in groundwater concentration, gradient and flow directions. Assessment of statistically based trends that may inform decision making during review of the OMP, including whether:
 - A review of the CSM is required.

- The risk profile has changed across the site or at a specific location.
- An OMP or PMAP review is required.
- Overall summary of the changes and extent of PFAS and whether monitoring has met the objectives of the OMP.
- Assessment of data against triggers detailed in the OMP and recommendations for responses.
- Inclusion of the following information as attachments:
 - Previous OMP factual reports.
 - This SAQP.

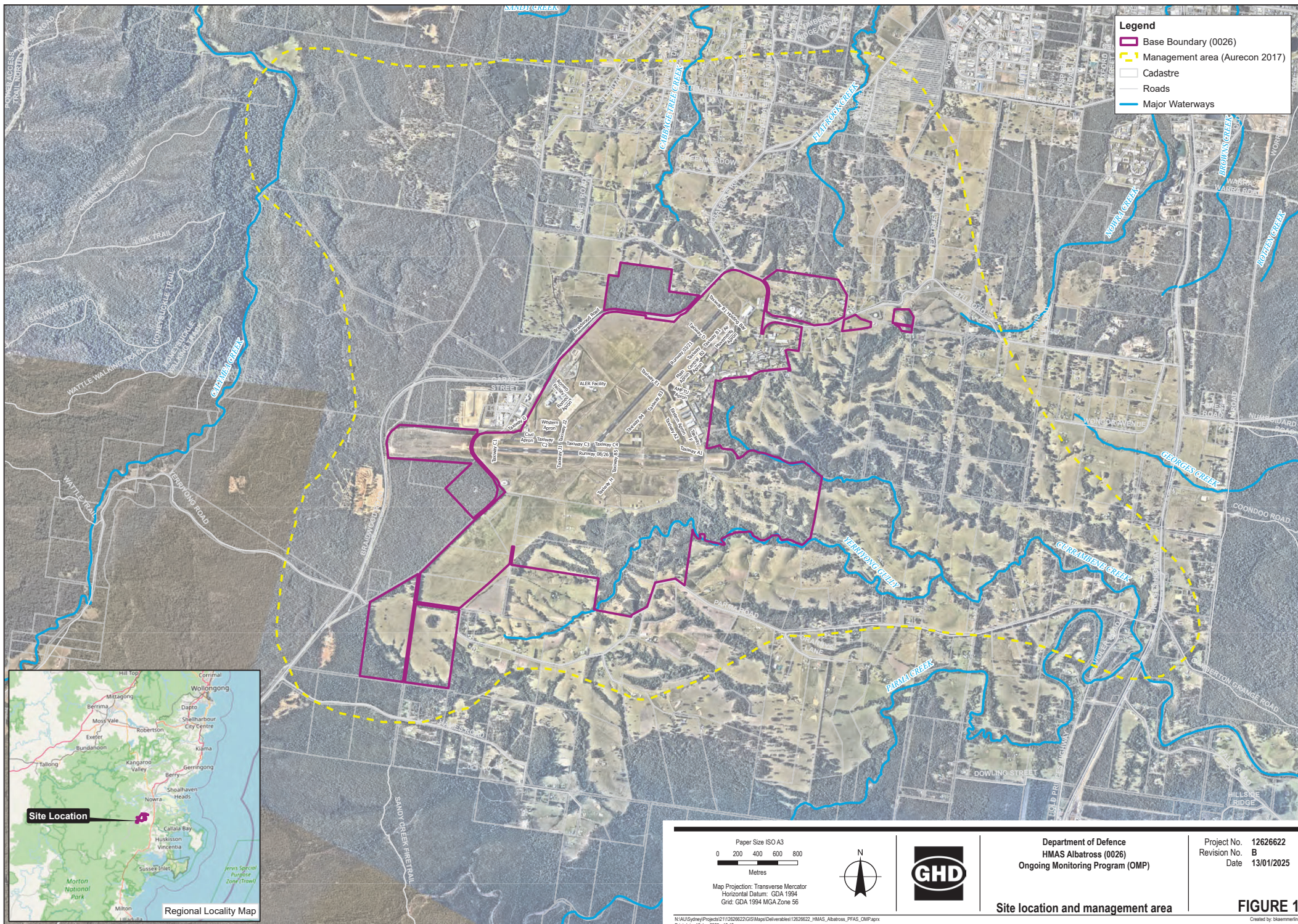
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Appendices

Appendix A

Figures



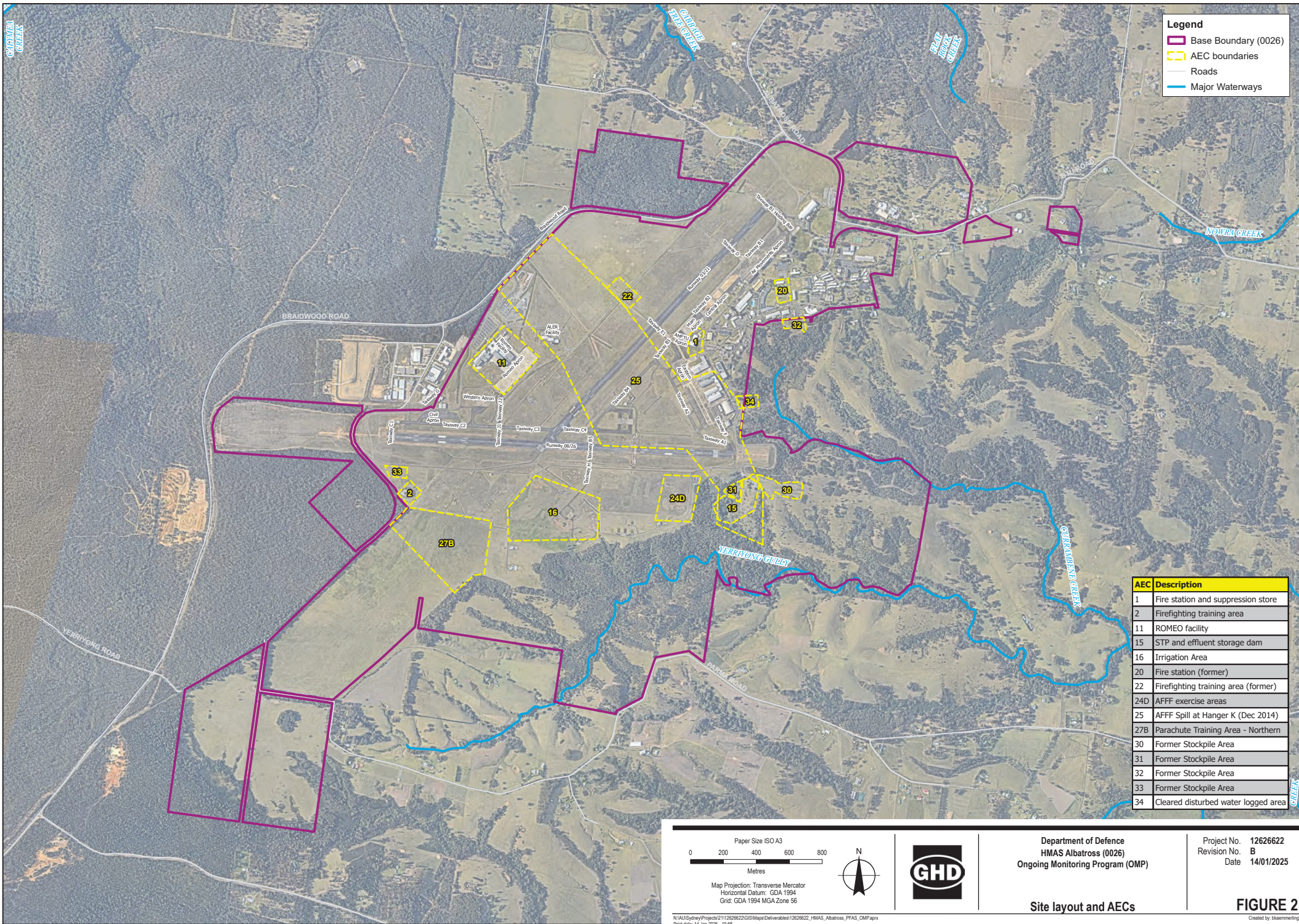
Legend

- Base Boundary (0026)
- Management area (Aurecon 2017)
- Cadastre
- Roads
- Major Waterways



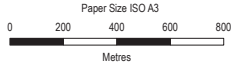
<p>Paper Size ISO A3</p> <p>0 200 400 600 800</p> <p>Metres</p> <p>Map Projection: Transverse Mercator Horizontal Datum: GDA 1994 Grid: GDA 1994 MGA Zone 56</p>			<p>Department of Defence HMAS Albatross (0026) Ongoing Monitoring Program (OMP)</p>	<p>Project No. 1262622 Revision No. B Date 13/01/2025</p>
<p>Site location and management area</p>			<p>FIGURE 1</p> <p><small>Created by: skemmerling</small></p>	

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- Legend**
- Base Boundary (0026)
 - AEC boundaries
 - Roads
 - Major Waterways

AEC	Description
1	Fire station and suppression store
2	Firefighting training area
11	ROMEO facility
15	STP and effluent storage dam
16	Irrigation Area
20	Fire station (former)
22	Firefighting training area (former)
24D	AFFF exercise areas
25	AFFF Spill at Hanger K (Dec 2014)
27B	Parachute Training Area - Northern
30	Former Stockpile Area
31	Former Stockpile Area
32	Former Stockpile Area
33	Former Stockpile Area
34	Cleared disturbed water logged area



Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56



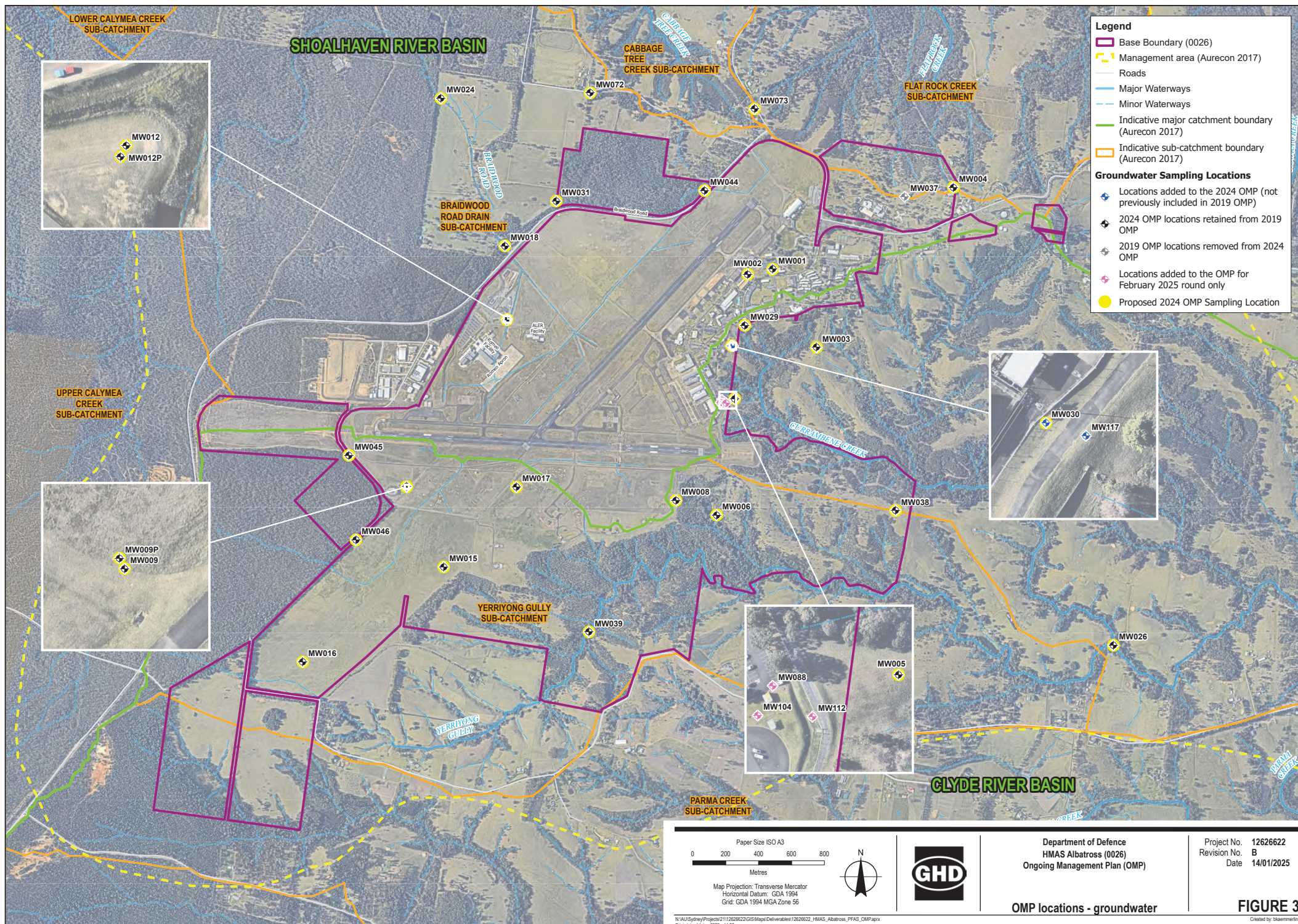
Department of Defence
 HMAS Albatross (0026)
 Ongoing Monitoring Program (OMP)

Project No. 1262622
 Revision No. B
 Date 14/01/2025

Site layout and AECs

FIGURE 2
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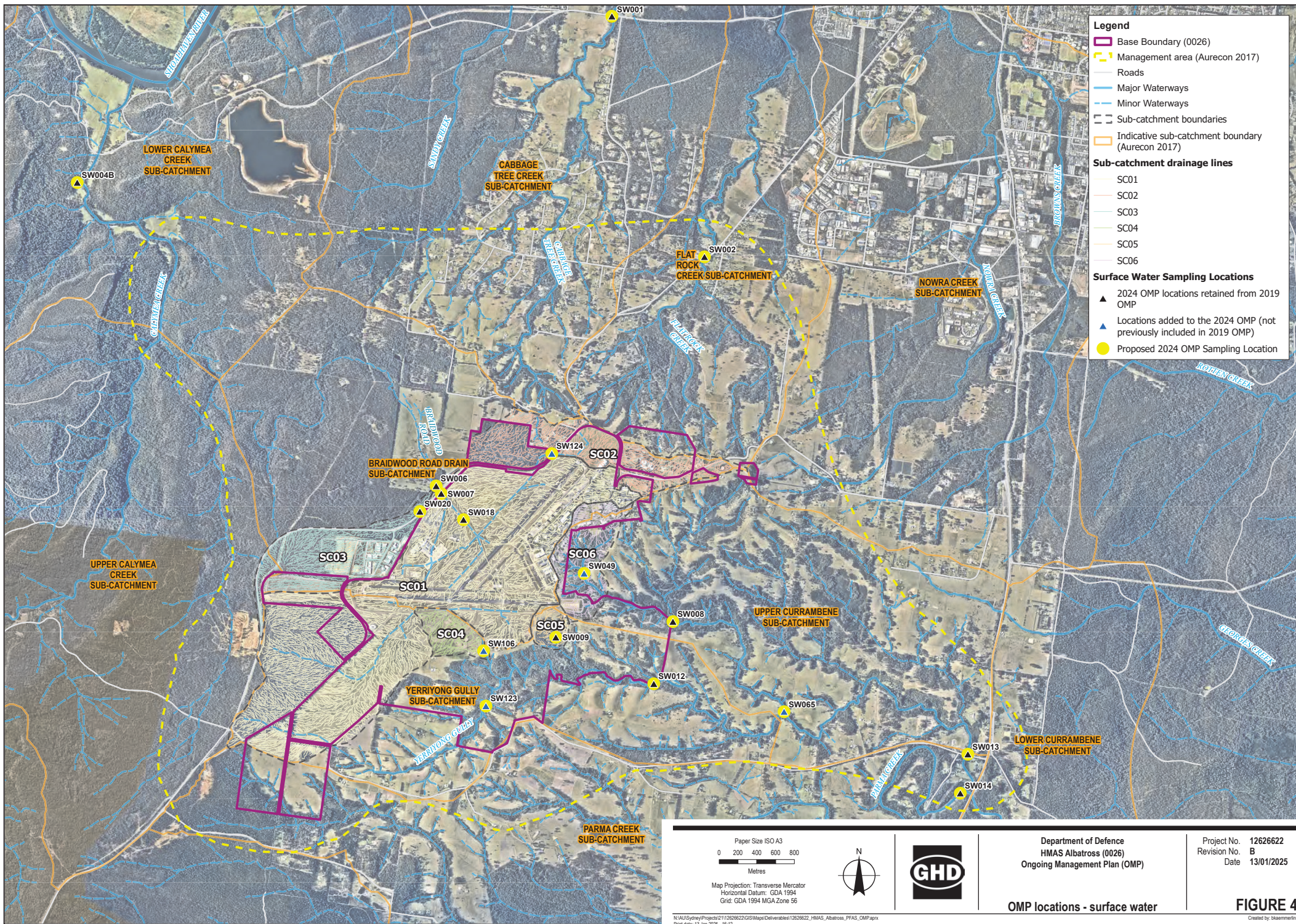


FIGURE 4
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Appendix B

OMP sampling locations

Table B 1 Groundwater sampling locations

Location	Sub-catchment	Location ID	Historical ID	Easting	Northing	Top of casing (TOC) elevation (m AHD)	Screen interval (m bgl)
On-site (25 locations)	Braidwood Road drain	0026_MW001	BH01	276547.154	6130950.506	116.622	6.0 - 9.0
		0026_MW002	BH02	276395.772	6130918.377	114.335	6.0 - 9.0
		0026_MW012	BH12	274933.984	6130645.223	104.087	9.0 - 12.0
		0026_MW012P	BH12s, MW012_P	274932.611	6130642.491	104.086	1.3 - 5.3
	Flat Rock Creek	0026_MW004	BH04	277645.653	6131447.596	144.135	5.5 - 8.5
	Upper Currumbene Creek	0026_MW005	BH05	276316.476	6130163.626	99.114	5.5 - 8.5
		0026_MW029	BH29	276378.000	6130609.000	110.154	5.0 - 7.7
		0026_MW038	BH38	277293.712	6129484.469	86.383	5.0 - 8.0
		0026_MW030 ¹	BH30	276298.000	6130486.000	107.902	20.5 - 23.5
		0026_MW117 ¹	MW105, EW06	276307.726	6130482.871	108.178	4.3-7.8
	Yerriyong Gully	0026_MW006	BH06	276207.025	6129457.353	77.233	4.0 - 7.0
		0026_MW008	BH08	275959.903	6129545.997	104.912	6.0 - 9.0
		0026_MW009	BH09	274324.580	6129628.300	116.632	12.0 - 15.0
		0026_MW009P	BH09s, MW009_P	274323.813	6129629.895	116.634	0.5 - 2.5
		0026_MW015	BH15	274549.036	6129141.475	119.178	8.0 - 11.0
		0026_MW016	BH16	273690.110	6128562.790	126.040	6.0 - 9.0
		0026_MW017	BH17	274991.397	6129626.929	112.476	11.0 14.0
		0026_MW039	BH39	275431.817	6128747.328	74.701	1.0 - 4.0
		0026_MW045	BH45	273973.670	6129819.430	124.484	7.0 - 10.0
		0026_MW046	BH46	274016.463	6129306.208	122.911	5.5 - 8.5
	Upper Currumbene Creek	0026_MW003	BH03	276813.961	6130475.216	112.337	15.0 - 20.0
		0026_MW088 ²	TFNA_CBH_12	276240.00	6130157.00	102.6	1.1 - 6.5
		0026_MW104 ²	MW104	276230.930	6130138.970	110.1	4.5 - 9.0
		0026_MW112 ²	MW16, EW01	276264.197	6130138.122	107.356	5.8 – 8.8
		0026_MW213 ²	-	276212.020	6130117.990	109.910	3.0 - 6.0
Private Property	Braidwood Road drain	0026_MW024	BH24	274525.990	6131985.710	97.015	6.5 - 9.5
		0026_MW031	BH31	275228.430	6131364.890	103.386	3.0 - 6.0

Location	Sub-catchment	Location ID	Historical ID	Easting	Northing	Top of casing (TOC) elevation (m AHD)	Screen interval (m bgl)
(3 locations)	Upper Currumbene Creek	0026_MW026	BH26	278620.470	6128666.400	31.685	5.5 - 7.5
Road Reserve (4 locations)	Braidwood Road drain	0026_MW018	BH18	274921.000	6131092.000	100.782	9.5 - 12.5
		0026_MW044	BH44	276133.840	6131427.970	111.923	5.0 - 7.0
	Cabbage Tree Creek	0026_MW072	MW72	275439.104	6132021.222	108.106	4.85 - 7.85
		0026_MW073	MW73	276437.621	6131923.649	120.919	6.0 - 11.5

Table Notes:

1 – Monitoring locations added to this OMP.

2 – Locations added to this OMP for the February 2025 event only.

Note: Historical ID, Eastings, Northings, TOC Elevation and Screen Interval are sourced from the Defence ESdat database.

Table B 2 Surface water sampling locations

Area	Sub-catchment	Location ID	Easting	Northing
On-site (6 locations)	Braidwood Road drain	0026_SW007	274962	6131014
		0026_SW018	275199	6130736
	Yerriyong Gully	0026_SW009	276181	6129485
		0026_SW012	277223	6128991
		0026_SW106 ¹	275413	6129341
		0026_SW123 ¹	279621	6128988
Off-site (12 locations)	Braidwood Road drain	0026_SW005	-	-
		0026_SW006	274908	6131095
		0026_SW020	274735	6130823
		0026_SW124 ¹	276139	6131439
	Cabbage Tree Creek	0026_SW001	276777	6136090
	Calymea Creek	0026_SW004B	271090	6134321
	Flat Rock Creek	0026_SW002	277762	6133532
	Parma Creek	0026_SW013	280564	6128242
		0026_SW014	280483	6127827
	Upper Currumbene Creek	0026_SW008	277426	6129656

Area	Sub-catchment	Location ID	Easting	Northing
		0026_SW049 ¹	276482	6130165
		0026_SW065 ¹	278609	6128694

Table Notes:

1 – Monitoring locations added to this OMP.

Note: Eastings and Northings are sourced from the Defence ESdat database.



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